NEW REMEDIES.

AN ILLUSTRATED MONTHLY TRADE JOURNAL OF
MATERIA MEDICA, PHARMACY, AND THERAPEUTICS

VOL. XII., NO. 12. WHOLE NO. 114.

FRED'K A. CASTLE, M.D., - - EDITOR.
CHARLES RICE, PH.D., - ASSOCIATE EDITOR.

PUBLISHED BY
WILLIAM WOOD & CO., 56 & 58 Lafayette Place N. Y.

DECEMBER, 1883.

SUBSCRIPTION PRICE per year, - - - - - $2.00
SINGLE COPIES, - - - - - - - - - - .20

Address all communications relating to the **business** of NEW REMEDIES, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the **Editor** should be addressed to THE EDITOR OF NEW REMEDIES, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

NEW REMEDIES is issued the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location and time. Special rates on application.

ELECTROTYPES of the illustrations contained in NEW REMEDIES will be furnished for 50c. per square inch.

EDITORIAL.

THE teaching schools of pharmacy propose to require an entrance examination after next year or, in place of it, a certificate from a grammar school or high-school, which will show that the candidate is possessed of as much knowledge as should be had by a boy of sixteen of average intelligence.

CONSIDERING the opportunities for education in this country, it is really quite remarkable how many persons are to be found attempting the study and practice of pharmacy and medicine, who read but poorly, write miserably, can hardly solve a problem correctly in the elementary rules of arithmetic, and know so little of geography that the Englishman who comes to this country expecting to shoot buffaloes on the Jersey flats is quite their superior in this respect.

REBATE for retailers is the question of the day. We understand that the committee appointed by the retailers' convention at Washington, have already received the names and dollars of a large number of applicants for membership in the National organization.

THE importance of forming a national association of retail druggists should not obscure the necessity for local organizations, upon the existence of which the efficiency of any project for mutual protection must depend. Those who wish to aid this project (which certainly appeals to the pocket of every retailing apothecary) should inclose $1.00 and his name and address to Mr. E. A. Sayre, 461 Myrtle avenue, Brooklyn, N. Y. It should be remembered that membership is restricted to retail druggists engaged in business on their own account.

PHILADELPHIA pharmacists have already taken steps towards perfecting a local organization, and their committee have addressed a circular to those interested, asking their co-operation.

THE PHARMACEUTICAL CONFERENCE at Southport was largely attended, and the character and number of papers read was all that could be desired. The address by Professor Attfield, the President, was the chief feature of the occasion. In discussing the relations of the State to the pharmacist, he gave a graphic account of the present condition of retail pharmacy in Great Britain, and of the circumstances which have tended, of late years, to lessen the ratio of qualified chemists and druggists to the entire population. The following brief extracts will show the unsatisfactory condition of the trade in Great Britain, and may stimulate pharmacists here to greater efforts towards self-protection.

"A crisis in pharmacy is fast approaching. The endeavor of the British Legislature to provide for the proper supply of trutsworthy drugs to the public is being seriously thwarted. The great importance of such a supply is obvious, and in 1863 Parliament enacted that after the end of that year no person should take the title 'chemist and druggist' and practise under it unless, after satisfying State examiners that he was properly qualified, his name was duly enrolled on a State register. Now, that it was possible for any person probably utterly unqualified and certainly unregistered to act towards the public as a chemist and druggist, without actually calling himself or using the words 'chemist and druggist,' was not then foreseen. Yet that is exactly what is happening. The practice which has long existed in this country, especially in thinly-populated districts, of some general shop-keeper, usually a grocer, selling two or three common drugs, a practice itself not always harmless, has within the past five or ten years developed into the sale of nearly all drugs and medicinal compounds by shop-keepers of all descriptions in nearly all districts. Indeed, in some cases, also increasing in number every year, completely furnished shops, indistinguishable in appearance from those of registered chemists and druggists, are opened by unregistered and unqualified men, who are mere distributors in retail of drugs bought wholesale—men without proper knowledge respecting the dangerous articles they deal in, and without any sense of the responsibility of their position. The sham chemists and druggists, and large numbers of the general shop-keepers alluded to, sell everything the properly-qualified chemist and druggist sells. The only articles which they are not supposed to sell are the few more virulent poisons scheduled in the Pharmacy Act, the sales of which, however, by the duly-qualified man do not make £5 difference to him in the course of a year."

Speaking further on of the character of the dealers who have added drugs and medicines to their other wares, Prof. Attfield enumerates barbers, booksellers, chandlers, confectioners, drapers, general dealers, grocers, hair-dressers, herbalists, iron-mongers, marine-store dealers, oilmen, printers, publicans, stationers, store-keepers, tailors, tobacconists, toy-dealers, wine merchants. Many of these shop-keepers are no doubt in a very small way of business; many, however, are prominent men, doing large trades, and too often sell the drugs at cost price as mere baits to catch customers for other profitable transactions.

On the Mashing, Fermenting, and Distilling of Grain into Whiskey.*

BY C. K. GALLAGHER.

[Concluded from page 345.]

THE yeast previously made, if working properly, should now be added, and water used to make the quantity in all about eighty gallons. This yeast is sufficient to start a set of fermenting tubs, and at the expiration of forty-eight hours, if it is working well, weigh out 324 lbs. corn meal, 18 lbs. rye meal, 18 lbs. barley malt; when the water previously placed in the stills has boiled for a few minutes, empty eight gallons scalding hot into tub No. 1, and have ready about one-third of the meal, which should be gradually added in portions of one-half bushel to eight gallons water, at the same time stirring constantly. Again add eight gallons of scalding hot water, and stir in another one-half bushel of meal, and repeat until the one-third apportioned for that tub is used, observing to use about double the measure of boiling water for each measure of meal. Less water makes harder work but a better mash. The meal is gently shaken from a measure held high above the tub, while an assistant seizes the mash fork, and rapidly and thoroughly stirs the mixture until a smooth and even mash is made. A portion of the rye meal is now distributed over the surface, called "capping," to confine the heat, and the mixture or mash is left to stand. The tubs No. 2 and 3 are treated in a similar manner, and after standing two or three hours the mashes are broken up by stirring, and a portion of the malt is added; this is termed breaking up.

The addition of the malt instantly changes the tough, pasty mass into a thin mixture. This is stirred well, capped with the remaining rye meal, and let stand one or two hours, when it should be brought to a temperature of 150° F. or less, by adding one or two buckets full of cold water. Add all the malt, stir well; it is now ready for the yeast made forty-eight hours previous, all of the yeast being distributed between the three tubs, except about two gallons which should be left in the yeast barrel; into the barrel pour about four gallons of the mixture from each tub, Nos. 1, 2, and 3; this is known as "yeasting" back, and is done to prepare yeast for the next day's work.

The tubs numbers 1, 2 and 3 are now filled to within three inches of the top with cold or hot water as required by the season, until the temperature of each tub when filled stands at 75° to 85° F. in warm weather, or 95° to 100° in cold weather.

The filling up of the tubs is styled "cooling off," and the "beer" is now said to be set, and fermentation rapidly begins. The wort by the saccharometer should read 6° to 8° at this stage, and at the expiration of ninety-six hours should be attenuated to 0, and is ready for the still. The tubs are covered over loosely with straw mats in cold weather, and in warm weather are left uncovered

The duration of the fermenting period varies with the season, being longer in cold, and proceeding so actively in very warm seasons, as to render the process hard to control, the beer souring, lactic acid, acetic acid, and aldehyde being formed; therefore June, July and August are not favorite months for operating this class of distilleries.

Mashing in, breaking up, yeasting back, and cooling off, are carried on for tubs numbering 4, 5 and 6, on the second day, and for tubs numbering 7, 8 and 9, on the third day, and for tubs numbering 10, 11 and 12, on the fourth day. After the water for mashing in has been heated, and used for 10, 11, and 12, on the fourth day, the contents of numbers 1, 2, and 3 are conveyed to the still, by buckets, or gutters, and pumps.

It is very necessary at this stage of the operation to carefully and constantly stir the beer until it is at the boiling point, otherwise the meal would settle upon the bottom of the copper boiler, and quickly scorch, which would ruin a fine whiskey. The scorching, when it does happen, can only occur in this part of the process. The distillate resulting from this charge is called sour wine, and about seventy five gallons are obtained from the beer contained in tubs numbers 1. 2 and 3. A hydrometer is used to show when the charge is exhausted. The "spent beer" remaining in the singler stills is then discharged into the "slop-trough" or vat. The fifth day "mashing in" differs from the process given above as follows: Tubs number 1, 2 and 3, having been emptied the preceding day, are treated in the manner described for mashing in, except that now spent beer or the supernatent liquor from the residue turned out of the discharge spout of the singler, after distilling over the low wines, is used in cooling off, usually six or eight buckets of two and a half gallons each to each tub. The yeasting back must be continued daily. The contents of the first four series of tubs (numbering twelve tubs) after distillation, will furnish, properly speaking, a sweet mash whiskey.

That resulting from the process when "spent beer" furnishes the ferment, is known as "sour mash." The process of mashing and fermenting now goes on in one unvarying routine (Sunday excepted), as described on the fifth day, and until operations are suspended at the will of the distiller. The sour wines are daily pumped into the doubler still, and after the connections are closed with a luting of rye meal and water made into paste, the fire is started and the spirit is distilled off, until it falls to 90° at the worm at a temperature of 60° F., equal to forty-five per cent by volume of alcoholic strength. The distillate in the receiver or cistern will vary in quantity and quality, according to the care with which the process has been conducted; the condition of the grain used and state of the weather affecting the yeast and fermentation of the beer, about two gallons in the minimum and three and a half in the maximum being the quantity of spirits of 100° proof at 60° F., usually obtained from each bushel of grain of 56 lbs avd.

In large distilleries having facilities for kiln-drying their grain, four gallons and more to the bushel is obtained, and 16,000 gallons per day. Mash tubs, beer vaults, and fermenting tubs or vats are also used in the large distilleries. Limestone or marl-water is best for keeping the yeast in condition. The action of sulphuric acid upon the starch of the grain during the mashing process increases the yield of spirits, but the "swill," being a valuable feed for stock, would be rendered unfit for stock feeding unless freed from the acid remaining. Until some change in the present Internal Revenue law affecting the manufacture of spirits is effected, there is but little encouragement for distillers of pure whiskeys, brandies, rum and gin to compete with the cheaper class of spurious liquors placed upon the markets by the rectifiers formerly designated under the law as mixers and compounders, which name was too expressive for profit and was accordingly changed. The expression "Straight Goods," used in the trade, may mean the poorest corn whiskey made by this continuous process, or the finest "Bourbon," as the Government requires the same kind of stamps to be used for all classes of goods made at distilleries, viz.: Distillery Warehouse Stamp and Tax Paid Stamp; the other two stamps are used on single stamped goods and are known as Rectifiers' Stamp and Wholesale Liquor Dealer Stamp.

When a barrel is filled at a distillery the Government storekeeper and gauger at once gauges and stamps it with the Distillery Warehouse Stamp, showing the date of its manufacture; it is then placed in the bonded warehouse, where it can remain three years, unless the tax of ninety cents per gallon being paid, it is sooner removed, when a Tax Paid Stamp is affixed, stating the number of gallons upon which the tax has been paid, and the date of payment, and it is then ready for market.

The law requires that any change made by mixing, diluting or manipulating in any manner, shall be deemed rectification, and a Rectifiers' Stamp placed upon the barrel instead of the two original stamps, which must be destroyed.

The Wholesale Liquor Dealers' Stamp is used to cover the transfer from an original stamped barrel to smaller

* Read at the Meet. of the Am. Pharm. Assoc.

packages, from five gallons up; this stamp is never used on original packages, therefore when a barrel bears either a Wholesale Liquor Dealers' Stamp or a Rectifiers' Stamp, it is prima facie evidence of being mixed or rectified goods, and when a barrel bears both Distillery Warehouse and Tax Paid Stamps it may generally be regarded "straight goods," though some dealers draw out a portion from the contents of an original package and refill with spirits.

DISCUSSION.

In the discussion which followed, Mr. Ebert, of Chicago, Ill., stated that pharmacists were very careless as to the quality of the liquors which they bought and dispensed. He believed that, without violating the Internal Revenue laws, it would be perfectly feasible to make an excellent whiskey from highwines. Such an article, originating in Montreal, had been sold in Chicago several years ago, under the name of "Malted Spirit." It was more than probable that it was made by treatment of highwines with permanganate of potassium, and re-distillation. After a couple of years' "ageing" it was found to have an agreeable ethereal odor, but in all other respects it was similar to diluted alcohol. The higher alcohols present in the fusel oil were oxidized to their respective acids by the permanganate used, and these acids gradually formed compound ethers with the alcohol.

Mr. J. D. Wells, of Cincinnati, Ohio, stated that most dealers preferred whiskey containing a moderate amount of fusel oil.

Professor Prescott stated that raw whiskey owed much of its rankness and bad odor to the presence of certain empyreumatic substances, produced by excessive heating during distillation: these substances were readily destroyed by treatment with permanganate, whereas the oxidation of fusel oil alcohols was slow and incomplete. His observation had led him to believe that the best methods yet devised for separation of fusel oil were by carefully regulated fractional distillation, or by treatment with charcoal. It should be remembered that the amount of fusel oil in really poor whiskey seldom exceeds a small fraction of one per cent.

Returning to the consideration of manufacturing processes, Mr. Ebert stated that the use of sulphuric acid for the conversion of starch into glucose had been given up. It was still in use, when mixed with the fermented liquor previous to distillation, but this practice had also been abandoned in most places. The whiskey thus produced was very "raw," and required purification to render it fit for use.

The best and most rapid method of preparing the starch for fermentation was by treatment of the ground grain, in strong, copper cylinders, with steam, at a pressure of 80 to 100 pounds. The starch thus "cooked" is easily fermented, and yields a large quantity of spirit of excellent quality.

In relation to the "ageing" of distilled liquors by treatment with electricity, Mr. Ebert explained that the invention was undoubtedly that of a member of the Chicago Fire Department who conducted successful experiments soon after the great Chicago fire. A patent had recently been granted to certain French parties for this process.

How to Weigh Small Quantities Accurately upon a Large Decimal Scale.

MR. AUGUST PRINZL publishes an ingenious method—not quite new, but very little known or used—for using the larger sizes of decimal or platform scales in weighing small quantities correctly. Cases where only large scales are available, and yet small articles should be weighed, occur frequently enough, and the method may therefore be of service to many of our readers.

To accomplish the object, it is only necessary to reverse the method of weighing, namely, to place the substance to be weighed upon (or to suspend it from) the weight-pan of the decimal scale, and to balance it either by large regular weights placed upon the platform, or by any other convenient article. If weights have been used for balancing, it is only necessary to divide by 10 to find the actual weight of the article. If it has been counterbalanced by any odd substance, for instance a keg containing a sufficient quantity of nails, the weight of these latter is subsequently ascertained in the usual manner, and divided by 10, when the true weight of the article balanced by the keg will be ascertained.—After *Erfind. und Erfahr.*

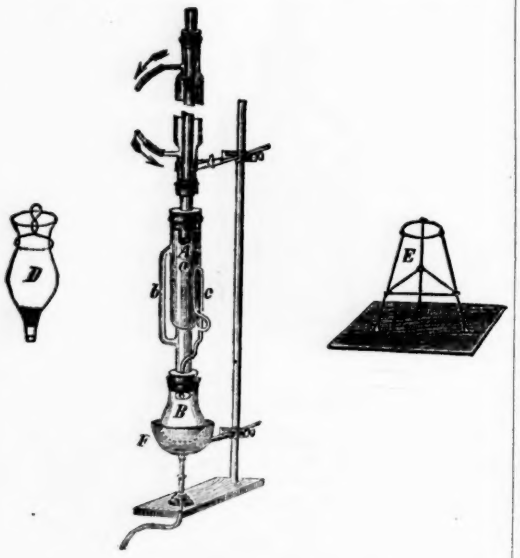
Volumetric Apparatus.

As a contribution towards the arguments which were advanced at the late meeting of the American Pharmaceutical Association, in favor of and against the sthatmometric process of assay (see the papers by Messrs. Bartlett and Taylor, on pp. 335, 336 of our last number), we give here an abstract of a paper by Kohlmann (from the *Arch. d. Pharm.*, x., 345), in which the same proposes to simplify the manipulation of using volumetric apparatus by a very ingenious contrivance, namely, to use the burette as stopper of the test-solution. Special stock-bottles, of course, are to be provided for this purpose, with burettes made expressly for the purpose, namely, so shaped that a certain portion of the upper portion may be properly ground in the neck of the flask, so as to serve as stopper. It is, probably, not even necessary to use a burette of this special shape; an ordinarry burette, passed through a tightly-fitting cork (or, whenever possible, a rubber-stopper), would probably answer the same purpose. The upper part of the burette is provided with a stiff rubber-bulb. When this apparatus is to be used, the burette is lifted out of the solution, allowed to drain, and the orifice again inserted in the liquid. By compression of the bulb and subsequent relaxation, it may be filled to any desired height. The accompanying illustration explains the arrangement sufficiently. We would only add that it seems to us as if the frequent use and removal of the burette with a little of the moist film of liquid adhering to it, which will, of course, rapidly dry in the case of saline solutions, would be likely to slightly alter the titer of the solution after awhile, owing to the evaporation of water from the outside of the burette. It would, therefore, be advisable to wipe the burette dry with filtering paper before filling it with the test-liquid, and also to insert a separate stopper in the flask as long as the burette is in use.

Soxhlet's Extraction Apparatus.

ONE of the most commonly used apparatuses for continuous extraction, in the analysis of milk, alkaloidal drugs, etc., is that known as Soxhlet's. It was originally designed by Szombathy, and merely described by Soxhlet. We have used it ourselves and have found it very handy, though we must say that it is exceedingly liable to be broken, as the slender glass-tube (*c*) is quite frail and delicate. Nevertheless, as it is frequently mentioned, and as we have had repeated inquiries concerning it from distant readers, we will briefly explain its construction.

A is the principal extraction vessel. This is merely a sort of test-tube, closed at the bottom, excepting that a thin glass tube arises from it, then ascends along the outer wall of the extraction vessel, and curving back, descends again. This tube, as will be seen further on, acts as a siphon. *b* is a somewhat wider tube, communicating above with the upper part of the extractor, and opening



Soxhlet's Extraction Apparatus.

below into a wide tube fused at one end to the closed bottom of the extractor, and passing, with the other end, into a small flask, by means of a tightly-fitting cork, through which also the slender siphon-tube is made to pass.

The material to be extracted is either directly packed into the extractor, a pellet of pure cotton being placed on the bottom, or it is put into a separate extracting tube, closed below with cotton (see Fig. *D*). The latter is preferred, when the residue is to be weighed after the operation.* For this purpose the little tube may be suspended in the wire-frame (Fig. *E*), which may be placed upon one of the scale-pans. The volatile liquid (ether, chloroform, etc.), having been placed in the flask, and heat being applied, it is volatilized, the vapor carried up through *b* into the condenser surmounting the extractor, from where it returns as a liquid upon the material to be exhausted. Here it accumulates until the liquid inside of the extractor has reached the level of the bend of the glass-tube *c* outside, when it will be siphoned off into the flask below.

* Szombathy proposed to put the material to be exhausted into a paper cylinder fitting into *A*, and reaching to within a few millimeters of the level *a*. This may be done whenever it is desired to weigh only the extracted matter in the flask. When, however, the residue is likewise to be weighed, the paper-cylinder is objectionable, as it is difficult to dry it to a constant weight.—*Chem. Zeitung.*

The *Chem. Zeit.* also mentions that this extraction apparatus is manufactured by Ephraim Greiner in Stützerbach near Ilmenau, dist. of Erfurt. In this city it may be had from dealers in chemical apparatus, f. i. Messrs. Eimer & Amend, 18th st. and 3d Ave.

Recent Progress in the Ozokerite Industry of the East.

BY E. SAUERLANDT.

OZOKERITE, or mineral wax, frequently accompanies petroleum, and traces of it are found in many places in Eastern and Western Galicia, and in the Caucasian and American petroleum territory, but it is rarely found in such quantities as to furnish a source of this valuable mineral. It is highly probable that many more workable deposits of ozokerite will be discovered yet, but hitherto the discovery of deposits that yield paying quantities have been so rare that we are greatly pleased to be able to announce that the past year did not pass without some success in this direction.

At the baths of Truskawiec, some five miles from Boryslaw, a deposit of this substance was found at a slight depth, of such extent that fifty tons have already been taken out and sold. The wax contains sulphur, and hence the oils produced in making paraffin from it must be used with some special precautions. This discovery of ozokerite in Truskawiec is the more interesting because Leo Strippelmann, several years ago, in his well-known work on the petroleum industry of Galicia, had referred to this place as particularly worthy of examination for the occurrence of ozokerite.

The same mineral is also reported as occurring in the neighborhood of Agram in Croatia, and investigations made there have proved the existence of deposits of considerable extent and tolerable thickness. Whether the hopes based thereon will be actually realized, the future must decide. At all events, this notice and the announcements of recent discoveries of ozokerite in Russia must be received with caution, for such announcements have frequently been made and no important results followed.

Other places in Eastern Galicia which may be looked upon as sources of ozokerite, besides Truskawiec, are Boryslaw, Dwiniacz, and Starunia, with Boryslaw at the head as hitherto. In all three of these places the wax is found in Miocene clay shales and clay marls with the intermediate sandstone, and frequently it accompanies rock salt and gypsum. While shafts have been sunk in Boryslaw to the depth of 200 meters (nearly 700 feet), they have not penetrated deeper than 30 or 40 meters (100 or 130 feet) in Starunia and Dwiniacz.

In Boryslaw the majority of the shafts are at present in the possession of three large companies, the oldest of which, "The French Mineral Wax and Petroleum Society," has been in existence for years, while the "Lemberger Credit Bank," and the firm of Gortenberg, Liebermann & Co. have commenced operations within the past year by the purchase of numerous shafts. In the first half of last year, the first-named society could point to a large production, but almost complely exhausted their present horizon, and are going deeper now, but with a smaller yield. The two other societies had, and still have, to contend with the drainage of their long-neglected shafts, and hence their production is not as large as could be desired.

In Boryslaw-Wolanka the production of mineral wax for the year 1882 was less than the preceding year, but, in view of the difficulties to be overcome, it must be considered, relatively speaking, as a favorable, and cannot be much less than that of 1877, which was 8,300 tons.

The price fluctuated from January, 1882, when it was 27¼ Austrian florins (about 14 dollars) per 100 kilos, to 25 florins in May, then steadily rose until the highest point (31½ florins) was reached in November, and there it remains. It is very questionable if the manufacturers can use it profitably at this price, and several establishments have already imported American paraffin to take its place, and

with good results. As it may be expected that the production of ozokerite will increase in the immediate future, we may predict a fall in the price.

Dwiniacz and Starunia yield about 25 tons per month, which at present prices pays well.

Before passing to the method of working it up, we must first consider how it is obtained, as one of the methods yields a product already partially purified. We refer to the extraction of the wax from the gangue called "lep." By melting it under water the greater part of the ozokerite is removed, but the residue still contains as much as twelve per cent of wax. These residues collect in enormous quantities, and hitherto were only considered as a nuisance, although the wax still in them represented an enormous capital. It is surprising that this capital was allowed to lie idle so long. It cannot be due to the small quantity of wax in it, because at the Brown coal works in Halle it pays to work coal which only yields ten per cent of tar, or twelve to fifteen per cent of tarry resins. The cause may be sought chiefly in the difficulty of working the residues, since the high price of fuel prevents its being liquated or distilled on the spot, and there is no suitable apparatus for extracting so dense a substance as clay and shale. According to the *Neue Freie Presse*, an ozokerite mechanic made an apparatus in 1879 that would make 6,600 to 7,000 pounds of pure wax from ten times that quantity of ore daily ; yet this apparatus of the unnamed workman has never been in operation.

In the past year, J. Merz in Boryslaw-Wolanka first succeeded in working these residues in his extraction apparatus, which has been patented in most countries. If the extractors now in use have not been constructed on so large a scale and capable of so large a daily yield as the one made in 1879, they have the undeniable advantage that they work, not merely on paper, but in reality.

About one-third of the ozokerite that comes into the market is worked into paraffin, and two thirds into ceresin. The use of mineral wax for making paraffin has increased, especially in Galicia, and here, too, distillation in superheated steam is commonly employed.

A large portion of the paraffin made is consumed there for making the Sabbath candles used in their religious rites by the Jewish inhabitants. It is not so carefully purified for this purpose as is done elsewhere.

The Galician factories, for the most part, refine the largest possible quantity (fifty to seventy per cent) of the waxy distillate directly with fuming sulphuric acid, and without pressing it. Of course, the resulting paraffin is not free from oil, but is tolerably white in color and useful for the purpose mentioned.

Very little has been made public concerning improvements in making paraffin from ozokerite, and manufacturers keep their experience as secret as possible.

In 1881, E. Van Haecht and J. Schreier obtained a patent for purifying paraffin by blowing out the contaminating oils with superheated steam. It can be used for paraffins containing as an impurity light oils, as is the case in careful distillation, with the first portion of the wax distillate, and so long as the paraffin already present in the wax goes over undecomposed. The crude paraffins resulting from the decomposition of resinous bodies, as, for example, in the dry distillation of brown coal, or of the resin obtained by distilling ozokerite, cannot be purified by this method, as they contain oils specifically heavier than, and often having as high a boiling point as the paraffin itself.

In 1881, H. Ujhely took a patent for refining and hardening paraffin. According to the English specification, the crude paraffin is melted with a mixture of petroleum, benzin, and alcohol (methylic, ethylic, or amylic), and after cooling slowly, it is expressed. The advantages gained in this way over the common use of benzin (photogen) alone, in our opinion, consists merely in obtaining an oil more free from paraffin, since paraffin is considerably less soluble in alcohol than in benzin. Whether this is sufficient to counterbalance the disadvantages of working with alcohol, we will not attempt to say. We know, however, that in 1873 a paraffin factory added fusel oil to the paraffin for pressing, but after a few months returned to the use of benzin.

The yield of paraffin is essentially increased when superheated steam is employed in the distillation of the ozokerite, and in working a wax suitable for making paraffin it amounts to sixty or seventy per cent. Hence we can no longer adhere to the data hitherto published, which place the limits at thirty-six to fifty per cent.

In making ceresin, the chief improvements consist in a profitable utilization of the residues. Two methods are chiefly employed in the factories themselves. The first and simpler consists in heating the ozokerite with fuming and common oil of vitriol to 200° C. (392° Fah.) until the greater part of the acid is removed either by decomposition or evaporation, and then treating it at a suitable temperature with neutralizing and decolorizing agents, such as alumina silicates, bone coal, the refuse of prussiate factories, etc. By the second method the resinous and discoloring constituents of the wax are also removed with acid, but at a relatively low temperature, thus avoiding so thorough a decomposition.

To bleach ozokerite perfectly on a large scale without the use of acids has as yet remained an unfulfilled desire, although in 1879 a method for accomplishing it was announced as a new discovery of J. Ujhely in Vienna. Without going into discussion of priority, we must remark that George Gwynne, in his English patent of 1871 for "treating fatty and hydro-carbon bodies," etc., describes a process for bleaching ozokerite which possesses a striking resemblance to that of Ujhely. Gwynne removes the mechanical impurities and then dissolves it in benzin, filters through bone black, and removes the solvent by blowing in air. This method is identical in principle with Ujhely's. Gwynne did not obtain any practical results, nor has Ujhely, nor Ofenheim, who took a patent on the same thing in 1879. The statements made then, that a factory was being built with a large apparatus on Ujhely's system, was based on facts; but it must be added that the building stopped before it was finished, and that the unfinished building has been in that state for two years, while the large apparatus remains in the workshop, awaiting payment by the man who ordered it.

Even if the difficulties that beset the working of Ujhely's patent on a large scale were overcome, and the consumption of decoloring agents reduced to a minimum, the product obtained would find only a very limited field of sale. Ujhely's "bleached mineral wax" would not be in much demand as an independent illuminant, owing to the large quantity of oxygenated resin in it, most of which is removed by the present method of treating it with sulphuric acid.

Finally, we may be permitted one short remark about a circumstance which has hitherto received too little attention.

Ceresin and paraffin are largely employed, as every one knows, for adulterating beeswax, and the methods in use for the detection of such adulterations are frequently based upon a determination of the specific gravity of the specimen in question. A short time ago, a table was published (*Chemiker Zeitung*, vi., page 74) giving the specific gravity of different kinds of wax and their mixtures; but in our opinion, it is of very little use, because it sets out with false premises in assigning a definite specific gravity to paraffin and ceresin. The specific gravity varies from 0.869 for that which melts at 100° F., to 0.943 for that melting at 180° F., as was shown by the author as early as 1878.

The following table shows the melting points of ozokerite paraffin:

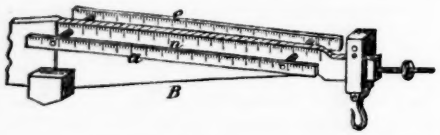
Solidifying Points.		Specific Gravity.
56° C.	133° F	0.912
61° C.	142° F	0.922
67° C.	153° F	0.927
72° C.	162° F	0.935
76° C.	169° F	0.939
82° C.	180° F	0.943

Since the specific gravity of paraffins that solidify at dif-

ferent temperatures is different, ozokerite and the ceresin made from it must differ in specific gravity. Then we must consider that commercial ceresin frequently receives an addition of paraffin, resin, carnauba wax, etc., by the manufacturers themselves.—*Chemiker Zeitung.*

Improvement in Balances.

THOSE who have much weighing to do on fine balances, particularly analytical, are aware how much time is consumed by the placing and removing of the smaller weights on one of the scale pans. The coarse adjustment by the gram-weights, down to 1 gram, consumes comparatively little time, but the subsequent work with the small weights takes up a great deal more, until the fine adjustment by means of the rider is reached, which again greatly facilitates the completion of the operation. It has occurred to Mr. J. Kruttich of Liege (Brussels), to do away with all the small weights and to use riders exclu-



sively. For this purpose one arm of the balance contains two additional beams, divided into decimals, each provided with a rider. One beam indicates decigrams, the next centigrams, the third milligrams. Supposing the scale-pan contained 12 full grams, and the three riders occupied respectively the marks: 3, 5, 2, on the three beams, then the total weight of the substance on the other scale-pan would be 12.352 grams.—*Dingl. Polyt. Journ.*, 249, 85.

A Newly-Recognized Property of Sulphate of Iron.

WHEN ferric sulphate is as neutral as it can be, *i. e.*, it does not cause effervescence with sodium carbonate, and contains no perceptible quantity of protoxide of iron, nor any ferric chloride, which is always acid, it is capable of uniting with organic substances or vegetable extractives to form very definite and stable compounds, that are not removed by solution in water nor decomposed by contact with the air. The organic substances in urine, as well as the phosphates, were instantly precipitated by the addition of two per cent of a liquid preparation having a density of 50° B., and containing 26 per cent of oxide of iron. Fresh urine treated in this way, May 16th, 1882, remained odorless and unchanged more than a year, although kept in a warm room, exposed to the air. An analysis showed the precipitate to contain 5.34 per cent of nitrogen, and 12.42 per cent of phosphoric acid, representing 16.44 per cent phosphate of lime. Excrement treated with 3 per cent of this reagent remained unchanged for a year. Fish entrails were put for two days in water containing 1 per cent of the reagent, then washed a long time in water, and on the 16th of May, 1882, were dried in the open air without any bad smell. They were subsequently cut up and digested in water in which only traces of iron salt could be detected. After drying again they kept as well as ever in the air. A similar treatment again with dilute hydrochloric acid only dissolved a little more iron, and the substances did not change afterward when exposed to the air of summer. To show that a true compound was formed between the iron salt and the organic substance, heads, intestines, the scales and skins of fishes, and ox-hide were exposed to the action of this salt of iron, then dried and preserved with the greatest ease. They were subsequently mechanically divided up, and exposed for several hours to the action of a boiling solution of barium chloride. A perceptible quantity of the reagent could not be detected. Barium sulphate could only be found in minimum quantities, and the mixture of these substances could be kept a long time in ordinary water After being in contact with water for more than a hundred days, only a few gas bubbles arose on stirring it up, having a slightly acid odor quite unlike sulphydric acid gas. Hence we may safely assume that a very stable compound was formed by the iron and the organic substance. Some fish, a dog, and a rabbit were put in the iron sulphate solution. The rabbit weighed 839 grams. and remained in the solution for five days; it became stiff, its skin kept its reddish color and became so hard and horny that it could scarce be scratched with the nail. The bath lost 6° B. in density, and after drying the surface the animal only weighed 539 grams, having lost 36 per cent in weight. An experiment with a goat's heart showed the same loss, the bath having taken the water out of the animal. When perfectly dry, the rabbit weighed only 326 grams. It has kept perfectly for a year, and the process of mummifying it cost less than one-tenth of a cent. Similar observations were made upon other animals. In 188-, a horse died from a very infectious disease, and the entrails, dipped in a solution of the neutral sulphate (a few parts of the salt in a thousand of water), were used immediately for demonstration as well as for examination by the students. A pheasant egg, weighing 9.35 grams was deprived of its shell and lost 38 per cent in the solution; it dried and shrivelled up and was completely mummified, without giving out any bad smell.

These results will be incentive to further experiments.—*Comptes Rendus.*

What is the Nature of the Precipitate found in Tinct. Boleti Laricis?

BY C. W. PHILLIPS *

BOLETUS LARICIS. Agaricus albus, Polyporus officinalis, larch agaric, white agaric, purging agaric. is procured from Asia, Carinthia, Russia. Central America. Rocky Mountains. in fact wherever the larch tree grows. The climate may have some influence on its chemical composition. This is an interesting point, and we may have occasion to refer to it again. from the fact that so many ingredients have been discovered by different chemists. which may ultimately be shown to have originated from the same source.

It is collected in August and September (when the weather is usually warm), deprived of its outer covering, and dried and bleached in the sun.

Composition.

Boletus laricis contains agaric acid, boletic acid (fumaric acid), fungic acid (a mixture of citric and malic acid), oxalic acid, benzoic acid, a white substance insoluble in chloroform and crystallizing in needles, an amorphous white body soluble in chloroform. agaricoresin, fungin, possibly mannite or mycose, magnesia, and calcium salts.

Agaric acid, $C_{16}H_{28}O_5H_2O$. E. Johns, in *A. J. P.*, Aug., 1883, supposed to be identical with the agaric acid of Fleury, $C_{16}H_{28}O_5$, and also with the laricin, $C_{14}H_{18}O_2$, of Martius and Will (this appears to be different from laricin obtained from the Polyporus igniarius, which has a formula $C_{14}H_2O_4$, as given by American Dispensatory, and also different from the resin which Hager calls Laricin, Pharm. Praxis, vol i., page 195), and the agaricin of Schoonbroodt obtained from the Agaricus albus These four substances which are supposed to be identical, are described as follows:

I.—Laricin, $C_{14}H_{18}O_2$ (Martius and Will, 1846), is a white amorphous, bitter powder, soluble in alcohol and oil of turpentine, and forming a jelly with hot water. National Dispensatory.

II.—Agaricin of Schoonbroodt (1863), occurs in the Agaricus albus, the inner substance of larch agaric (Polyporus offic.). It is distinguished from amanitin, the poisonous

* Read at the late meeting of the Am. Pharm. Assoc.

principle of Agaricus muscarius, and from the non-saponifiable, buttery fat obtained from the edible mushroom (slightly soluble in cold and boiling alcohol, easily soluble in ether), which has also been called agaricin.

When Agaricus albus is exhausted by percolation with cold water, and eighty-six per cent alcohol in succession, the alcohol extract leaves, on evaporation in vacuo, an amorphous yellow residue amounting to sixty-five per cent of the agaric employed, and soluble to the extent of one-third in fifty per cent alcohol. This solution is allowed to evaporate spontaneously, the white powder which is then deposited is dissolved in strong alcohol, and the solution is mixed with one-fourth volume of ether, which precipitates extractive matters. The ether-alcohol solution leaves, on evaporation, agaricin as a white crystalline powder made up of microscopic flat prisms. Tastes at first insipid, afterward sweetish, bitter and pungent. Free from nitrogen. It does not reduce alkaline solutions of copper, either alone or when mixed with emulsin, and left for twelve hours at 40°; but it exerts a slight reducing action after being boiled with dilute sulphuric acid, and after an hour's contact with saliva, a peculiar sugar being apparently produced.

It is dissolved and decomposed by strong acids and alkalies, soluble to a slight extent in water and alcohol, but not in ether, Gmelin's Chemistry, volume x., viii., p. 213.

Agaric acid, $C_{14}H_{28}O_5$ (Fleury, 1870). G. Fleury obtained this acid by extracting the dried and pulverized Boletus laricis with anhydrous ether. The substance crystallizing in bundles of needles, he called agaric acid. It melts at 145.7°, and at a higher temperature loses its water, and chars, is scarcely soluble in water, but gives it an acid reaction. Very soluble in alcohol, less soluble in chloroform, only slightly soluble in ether and acetic acid, still less soluble in bisulphide of carbon and benzol.

It volatilizes with the alcohol vapors when its alcohol solution is distilled. Easily soluble in alkaline solutions. Its soda salt is precipitated by alcohol in the form of amorphous flakes which, in the course of twenty-four hours, concentrate into groups of needles.

Most metallic salts give crystalline precipitates. (Hager Pharmaceut. Prax. and Husemann's Pflanzen-Stoffe.)

Agaric acid, $C_{16}H_{30}O_5H_2O$ (E. Johns, 1883). Agaricus albus is exhausted with hot ninety-per-cent alcohol, the tincture concentrated to the weight of the drug, and cooled, when agaric acid separates in indistinct crystals mixed with white resins, the red bitter resin remaining in solution.

The precipitate was collected, mixed with ten times its weight with sixty per cent alcohol, warmed in the water-bath until the crystals were dissolved, and filtered quite hot; the solution was evaporated, the residue repeatedly recrystallized from absolute alcohol to separate the resin until it was perfectly soluble in water. A little lime and magnesia was removed by recrystallization in the presence of hydrochloric acid, and an amorphous body was separated by dissolving in hot thirty-per-cent alcohol, and cooling to 50° C., when pure agaric acid crystallized in delicate silvery plates. It crystallizes from alcohol in groups of prisms, is inodorous and tasteless, melts at 138° to 139° C., requires at 15° C. one hundred and twenty-six parts of ninety per cent alcohol for solution, readily soluble in warm alcohol, glacial acetic acid, oil of turpentine, less soluble in ether, and nearly insoluble in cold water, chloroform, and benzol.

In boiling water, it swells to a jelly-like mass, and finally dissolves to a strongly acid, somewhat ropy liquid.

Its composition is $C_{16}H_{30}O_5H_2O$, the water being partly given off over sulphuric acid, and entirely at 100° C.

It is a bibasictriatomic acid, and homologous with malic acid. Its neutral alkali salts are easily soluble in water, and precipitated by alcohol in an amorphous condition, the sodium salt hardening to a radiating crystalline mass; the other salts are amorphous. The acid salts are little soluble in water, and with difficulty obtained pure. When boiled with nitric acid, agaric acid yields succinic acid and volatile fatty acids, among which butyric acid seems to predominate (*A. J. P.*, August, 1883).

Boletic acid, fumaric acid. Whether boletic acid exists in Boletus laricis or not, and whether boletic acid of Braconnot is identical with fumaric acid, and whether fumaric acid is actually a component part of Boletus laricis, does not seem to be very clear.

The boletic acid of Braconnot was prepared by precipitating the decoction of Boletus pseudo-igniarius with alcohol, and the white sediment, after being dissolved in water, was precipitated by nitrate of lead, and the precipitate treated with sulphuretted hydrogen, whereby the boletic acid was set free.

It crystallizes in four-sided needles, tastes like cream of tartar, has a strongly acid reaction, and is sublimed unchanged; soluble in one hundred and eighty parts water at 20° and in forty-five parts alcohol. Precipitates oxide of iron from its solutions (Liebig, "Organic Chemistry," p. 432). Hager says: "Boletus Laricis further contains fumaric acid, citric and malic acids, which formerly had been known as boletic and fungic acids."

The boletic acid of Bley (1834), according to Bolley and Dessaignes (1853), is identical with fumaric acid and Braconnot's fungic acid was ascertained by them to be a mixture of citric and malic acids.—National Dispensatory. The Homœopathic Pharmacopœia classes boletic acid and fumaric acid as synonymous, page 75.

If fumaric acid does exist in Boletus laricis, it brings it into relationship with other substances which contain fumaric acid, namely: Fumaria offinalis, Cetraria islandica, Glaucium luteum, and Corydalis bulbosa. But since fumaric acid is also obtained by the dry distillation of malic acid, and malic acid exists in Boletus laricus, may not the existence of fumaric acid be the result of some chemical action which may take place in the preparation of the boletus?

Fumaric acid, $C_4H_4O_4$, is described as follows: The acid obtained from malic acid crystallizes in broad, striated, colorless prisms, sometimes rhombic, sometimes hexagonal (Pelouze); that obtained from fumitory in scales united in stellate groups (Winckler). That from Iceland moss in needles (Pfaff), in crystals aggregated in cauliflower tufts (Schödler). The acid sublimes in long white needles (Lassaigue, Winckler), requires a high temperature to melt it, volatizes somewhat above 200° even before melting, giving off vapors which attack the eye strongly (Winckler). It sublimes for the most part unaltered, but partly resolves into water and fumaric annydride.

It is inodorous, tastes very acid, and reddens litmus strongly (Winckler, Pelouze, and others); it burns with a pale blue flame (Winckler; when triturated and heated with peroxide of lead it gives off water and then takes fire without emitting any odor of formic acid (Rieckher). The colorless solution of the acid in oil of vitriol turns brown when heated (Winckler), and gives off sulphuric acid (Rieckher); the aqueous solution of the acid is not altered by eight days' boiling, or when heated in a sealed glass tube to 250°, not being converted into malic acid (R. Hagen). The acid is not decomposed by boiling nitric acid, s. g. 1.4, but remains unaltered when evaporated (Winckler), and separates out on cooling, with peculiar whiteness and brilliancy (Demarcay and Schödler).

It is not decomposed by boiling with water and peroxide of lead or bichromate of potash, and does not precipitate platinum black from bichloride of platinum (Rieckher). It dissolves in 390 parts of water at 15°, and a much smaller quantity of hot water (Winckler); in 210 parts of water at 12° (Lassaigue), and in 216 parts of water at 17° (Probst); dissolves readily in ether (Winckler and others), readily in 82 per cent alcohol (Winckler), and in 21 parts of 76 per cent alcohol (Probst).

Fumaric acid expels acetic acid from the acetates. Many fumarates are soluble in water, but none in strong alcohol. Free fumaric acid or solution of a fumarate added to nitrate of silver solution throws down a fine white powder (Lassaigue). The acid, dissolved in 200,000 parts of water, 80°, completely precipitates a silver solution that the filtrate shows no turbidity with HCl (Pelouze). Fumaric acid combines directly with nascent hydrogen to form succinic acid.

Citric acid } formerly called fungic acid (National Dispen-
Malic acid } satory and Hager).

Oxalic acid: The presence of oxalic acid in the form of hydropotassic oxalate, or calcium oxalate, which has been regarded by some chemists as a common constituent of fungi, has been demonstrated in about thirty species by the experiments of Hamlet and Plowright (Watts' Dictionary, page 832).

Benzoic acid: Masing denies the existence of benzoic acid observed by Bouillon, La Grange (National Dispensatory).

A white substance insoluble in chloroform, crystallizing in needles. Fusible at 271° to 272° C. It forms part of Masing's white resin (E. Johns).

An amorphous white body soluble in chloroform separating from its solutions in the form of a jelly, and identical with Masing's white resin, soluble in chloroform (E. Johns).

Agaric resin, $C_{51}H_{82}O_{10}$ (Fleury), is an intensely bitter reddish-brown resin rubbing up to a whitish-yellow powder, melts at 89°, insoluble in water, easily soluble in strong alcohol, scarcely soluble in 50-per-cent alcohol, very little in chloroform (Hager), easily soluble in chloroform (Husemann and National Dispensatory), easily soluble in wood alcohol, acetic acid, and ether (which becomes ropy), insoluble in benzol and bisulphide of carbon (Husemann), soluble in benzol and amylic alcohol (National Dispensatory), easily soluble in alkaline solutions, which become dark-colored and foam on shaking (Hager).

It is precipitated by most metallic solutions. The barium precipitate is $C_{51}H_{82}Ba_4O_4$ (Husemann).

This red resin is supposed to be the cathartic principle, but Behr says he took four grains without its producing any purgative action.

Fungin, of which Braconnot found 26 per cent, has been shown to be merely metacellulose, and may be obtained by treating agaric with water, weak soda solution, hydrochloric acid, and alcohol (U. S. Dispensatory).

Thus we see the nature of Boletus laricis from various standpoints.

The tincture of Boletus laricis, as furnished me by Prof. J. U. Lloyd was prepared by percolation with alcohol, each pint of tincture representing one pound of the drug. The precipitate, as it forms in the tincture, has a semi-crystalline appearance, and settles to about one-fourth the height of the liquid in the bottle More than nine-tenths of this precipitate is soluble in cold alcohol, and the filtered alcoholic solution of this precipitate has only slightly precipitated after standing eight months. (This precipitate, however, is not re-dissolved on shaking.) The residue from the alcoholic solution was then digested in ether and the residue digested in water and thoroughly washed, and dried by spontaneous evaporation and weighed. Three and nine-tenths per cent of the precipitate found in tincture of Boletus laricis is insoluble in alcohol, ether, and water. The filtrates and this precipitate have not yet been examined.

It would appear from the above facts that a tincture prepared with less of the drug would be more stable.

Accordingly a tincture was prepared by percolating one ounce of Boletus laricis with alcohol, making four ounces of tincture.

The next morning quite a large quantity of precipitate made its appearance, but after several days a portion seemed to redissolve, and now the tincture does not contain more than about one-fifth as much precipitate as that of Prof. Lloyd's, and is darker in color.

(The homœopathic pharmacopœia directs one part of agaric to be macerated with five parts of diluted alcohol two weeks and filter.)

A drop of the ethereal filtrate spoken of above was examined under a microscope; no needle-shaped crystals could be seen, but the field was covered with those same crystals having the appearance of citric acid.

A small quantity of agaric acid was prepared after Johns' method, and the alcoholic solution examined under the microscope; after some time three kinds of crystal made their appearance.

The greater portion were needle-shaped, but one large crystal looked just like a lump of chlorate of potassium, two or three smaller crystals had a rhombic shape and were slightly tinged yellow, probably from some resin adhering to them. The other crystals were entirely colorless. A portion of the precipitate was boiled with alcohol and the solution examined. No needle-shaped crystals could be seen. Owing to the great number of points to be investigated, I am unable at this time to give any fuller information and therefore ask for further time.

Artificial Urea as a Substitute for Quinine.

THE *Journ. d'Hygiène* reports that Dr. Belvousoff, of Charkow, Russia, has used artificial urea (carbamide) as a remedy for intermittent fever in place of quinine. It is almost tasteless, and does not depress the nervous system. In Southern Russia, the peasants have used urine as a febrifuge for centuries; this has suggested the rational use of urea to Dr. B.

[Possibly it was a similar train of thoughts which induced Dr. Drygin, of Cutais (Caucasus) to combine quinine and urea, and thereby to discover the easily soluble double salt of hydrochlorate of quinine and urea, which has been used with so much success in intermittent fever. —ED. N. R.]

Filtration of Finely-divided Precipitates.

IT is known that certain precipitates, such as sulphur, in emulsion pass through filter paper.

The author often employs a method which in many cases obviates this inconvenience, and which, to his knowledge, has not yet been made public. Filter paper is boiled with aqua regia until the mass is fluidified; it is then poured into a large quantity of water, and the white precipitate formed is washed by decantation. To render the texture of a filter very compact, it is filled with this material, previously stirred up in water, so as to form a very thin paste, and allowed to drain. The paper is thus covered with a layer, which obstructs its pores. Or a little of the same pasty matter may be mixed with the liquid to be filtered. —*Comptes. Rend.* and *Chem. News.*

Poisonous Wood.

THE use of a wood from Panama, called cokobola in the manufacturing interests in Bridgeport, is attracting the attention of the Connecticut State Board of Health. The wood is cheap, takes a brilliant polish, is easily worked, and is used extensively for knife handles and ornamentation. Workers in the material are poisoned, somewhat after the manner of sumac, although some are free from any effect. Swelling of the face, closing of the eyes, appearances of being burned on the hands are the usual symptoms. Some are attacked with distress in the stomach, with loss of appetite. One person who was a confirmed smoker, after being poisoned has been unable to smoke or even stay in a room where there is any tobacco smoke. Children playing in the sawdust of this wood, which had been dumped, were badly poisoned about their feet. At a large factory on Elm street, where this wood is extensively worked, chickens in the adjoining yards are said to have all died from eating the dust that settles on the grass.—*Scientific American.*

Artificial Cork.

A GERMAN patent (23,765; Feb. 6th 1883) granted to Grünzweig and Hartman, in Ludwigshafen on the Rhine, covers a process of making artificial cork by thoroughly incorporating 3 parts of ground or powdered cork chips with 180 parts of boiling starch-paste. The resulting plastic mass is pressed into forms, and after removal from the latter, dried in hot rooms.

Note on Paraldehyde.

DR. JOHN BROWN, of Bacup, reports in the *British Medical Journal*, as the result of experience, that the dose of paraldehyde as a hypnotic is from 30 to 50 minims. It produces sleep in most cases a few minutes after taking it, the effect lasting from three to seven hours. Larger doses, no doubt, would produce longer narcosis.

It produces no headache, no constipation, nor stomach derangement, contrary to the report given of it. In one case, it caused a slight depressant effect on the heart. In a patient who had been accustomed to chloral, it was stated that the sleep was refreshing, but, if disturbed during the sleep, the tendency to sleep left, which was not the case with chlorol. Paraldehyde in some cases causes a peculiar burning taste in the mouth the following morning. The breath smells of the drug for several hours after waking. It is probable that nearly all the drug passes off by the lungs in the same state as it is taken. Paraldehyde is not much, if anything, superior to chloral. It costs $1.25 per ounce; chloral 12c. per ounce, besides which, it requires a larger quantity of the former, so that it is about sixteen times as dear as chloral. Therefore it is not likely to come into general use. Being so insoluble in water, it makes a rather large draught, which is objectionable.—After *Chem. and Drugg.*

Wood-Wool.

ACCORDING to the *Medical Press and Circular*, Professor Bruns, of Mitingen, has introduced wood-wool (Holzwolle) as a cheap and useful dressing for wounds, a Mr. Hartmann, of Mendenheim, being intrusted with the preparation of the same for surgical dressings. It is finely ground wood, such as is extensively used in the manufacture of paper. It is a clean-looking, delicate-fibred, soft, yellowish-white substance, having an odor of fresh wood, and absorbs an immense quantity of liquid. The best wood-wool was found to be that which was obtained from the *Pinus picea*. The wood-wool thus procured was first pressed, passed through a sieve, then dried and impregnated with a solution containing one-half per cent of sublimate and ten per cent of glycerin. The advantages claimed for this dressing are numerous. It is cleanly, fresh, and of a whitish color; it is at the same time soft and delicate in texture as cotton, and "extraordinarily cheap." The actual price is, however, not stated. It possesses some antiseptic properties naturally, has an agreeable odor, and is exceedingly elastic even in thin layers, so that bandages can be put on more tightly with this than with any other dressing. Its absorbent properties are so high that it takes up twelve times its own weight of water, so that 10 grams of well-dried wood-wool after complete saturation attain a weight of 130 grams.—After *Chem. and Drugg.*

Note on Yellow Hydrochloric Acid.

IN "A Treatise of Chemistry," by H. E. Roscoe, F.R.S., and C. Schorlemmor, F.R.S. (new edition, 1881), at page 136 it is stated that the aqueous hydrochloric acid obtained in the manufacture of soda-ash is "usually of a yellow color, due to organic matter," and in the list of its impurities iron is not mentioned. In "Miller's Elements of Chemistry" (1868), at page 124 it is said that "Commercial hydrochloric acid is liable to be contaminated with iron, which gives it a yellow color." As I fancied that I had acquired, in my humble way, some knowledge of this important chemical, I experienced a shock of mental earthquake on reading the former statement. For consolation, I immediately had recourse to the bottle of yellow hydrochloric acid, with which I made the following experiments:

1. A small fragment of zinc bleached it at once, and chlorine water restored the yellow color.

2. After dilution with water, it gave a dark blue with potassium ferrocyanide.

3. Potassium ferrocyanide gave no blue color until the acid had been decolorized by zinc.

4. Potassium sulphocyanide gave a strong pink color with the diluted acid.

5. Ammonia in excess and ammonium sulphide gave a dark-green precipitate, which dissolved in HCl, and gave a dark-blue potassium ferridcyanide.

On adding a little ferric chloride to colorless hydrochloric acid, the same yellow shade was obtained, and the liquid gave the same reactions as the commercial yellow acid. My own equanimity being thus restored, I hope you will kindly allow me to preserve others from the shock experienced by.—A CORRESPONDENT of the *Chem. News*, Aug. 24th.

Death from Chlorate of Potassium.

COMMENTING upon several recent deaths caused by the injudicious use or administration of chlorate of potassium in Germany, Dr. C. Friedländer (in *Fortsch. d. Med.*, 17) demands that *chlorate of potassium* should be regarded as a poison and classed among them both in the pharmacopœia and in the shops.

[We agree with Dr. Friedländer in regretting the existence of a popular notion that chlorate of potassium is not poisonous. When taken in large doses, and particularly in often-repeated doses, it is capable of producing serious results. Much of this unfortunate practice is due to the mistake originally made when "kalium chloratum" was recommended as a remedy for sore throat, syphilitic or otherwise, or mercurial sore mouth, inasmuch as it was erroneously translated in English by "*chlorate* of potassium," while, in fact, the comparatively innocuous salt "*chloride* of potassium" was meant.]

To Keep Leeches.

IT has lately been recommended to keep leeches in water in which one-thousandth part of salicylic acid has been dissolved, and to renew this water every three weeks. The leeches are said to keep well in this manner, and to retain their full suction power.—*Pharm. Zeit.*

On the Modification of Quinine and Strychnine in the Animal Organism.

A RECENT publication in the *Comptes Rendues* of an article by Hanriot, on a product resulting from the oxidation of strychnine by permanganate, has induced Prof. P. C. Plugge, of Groningen, to publish the results of observations made by him, some years ago, on the apparent change which strychnine undergoes in the animal organism.

The first impulse to the experiments of Prof. Plugge was given by some interesting observations of Kerner, who found, that, when quinine is taken internally, a portion of it reappears in the urine, partly unaltered and partly amorphous, but behaving otherwise entirely like the original base, still possessing antipyretic and antiseptic properties, having a bitter taste, and answering to the well-known reactions for quinine. Another portion, however, appears in the urine as an altered substance, to which the name dihydroxyl-quinine has been given. This differs from quinine in various points; for instance, it can form soluble compounds with alkalies, and can be again separated from these by acid; it possesses neither antipyretic nor antiseptic effects, and has no bitter taste, yet it furnishes the thalleioquine reaction, just like quinine. Kerner also showed that the same decomposition product is furnished by oxidizing quinine with permanganate of potassium.

As the study of the alteration of strychnine, in its passage through the animal organism, is quite tedious and slow, owing to the minute doses which it is alone safe to administer to an animal at a time, Prof. Plugge confined himself to the study of the eventual products of the oxidation of strychnine by permanganate. Without going into details—for which we must refer the reader to the original paper—we will state that a body was thus obtained which had lost many of the properties of the original alkaloid, and

turned out not to be poisonous at all. Prof. Plugge concludes, by repeating Hanriot's experiments, that the substance obtained by the latter is identical with that obtained by himself.—Abstract from *Arch. der Pharm.*, Sept., 1883.

To Render Rubber Gas-Tubing Odorless.

THE following mode of preventing the disagreeable odor given off from rubber tubes employed for conducting illuminating-gas is given by the Mohrisch-Schleischer *Gewerbhalle*. Mix equal volumes of 36 per cent alcohol and good linseed oil, shaking the mixture well until homogeneous, moderately stretch the tube, and apply the mixture by putting a few drops on a small rag, and rubbing the tube until it is quite dry. Repeat the application three or four times, at intervals of a few days, and is said to render the tubes perfectly gas-tight, without impairing either their flexibility or color.

How to obtain Seeds of Cinchona Ledgeriana.

IT is not to be wondered at that a plant so extensively rich in quinine as the Cinchona Ledgeriana is, should attract the attention it did at a recent meeting of the Linnean Society, when Mr. J. E. Howard, F.R.S., the best living authority on the subject of cinchonas, read a paper on the subject. The question between botanists is whether the plant now generally known as *Cinchona Ledgeriana* is really entitled to rank as a distinct species. Mr. Howard looks upon it as a variety of *C. Calisaya*, while other botanists consider there are characters about it sufficiently strong to let it stand alone as *C. Ledgeriana*. This, no doubt, is an interesting point for scientists, but those who look to the practical side of the question will consider how best to increase the cultivation in the highest degree of a plant that yields, on the authority of Mr Howard himself, so high a percentage of quinine as from 7 to 12 on an average. The difficulty hitherto has been to obtain seeds of this valuable plant, and consequently, while the demand for it has been great, the supply has been extremely limited. Indeed, planters have been unable in many cases to obtain the seeds at all It is satisfactory, therefore, to know that by the energy of Mr. T. Christy, of 155 Fenchurch street, London, he has succeeded in obtaining seeds and raising plants in sufficient quantity to supply those interested in the culture. The genuineness of Mr. Christy's plants which he exhibited at the Linnean Society's meeting was verified by Mr. Howard.—*Land and Water.*

The Ink-Plant.

THE expressed juice of Coriaria thymifolia (a native of New Granada), which is at first red, but turns deep-black in a few hours, forms an admirable ink, since it does not attack the pens, resists many chemical agents, and is always (?) ready for use. Attempts are at present being made to cultivate it in Austria, and the editor of the *Rundschau* thinks that, if the acclimatization succeeds, the ink-manufacturers will have in it a dangerous competitor.

Naphthalin as an Antiseptic.

DR. LUECKE, of Strasburg, some time ago, recommended naphthalin as a serviceable antiseptic in cases where carbolic acid would be dangerous, and other antiseptics, such as iodoform, chloroform, etc., would be uncertain. His statements have been confirmed by others, who recommend it, for instance, in operations on the uterus, in the rectum, the fauces, also for dressing cavities which remain after the removal of infiltrated or suppurating lymphatic glands, etc. It is usually used in form of powder, not immediately applied to the wound, but placed on the outside of the first dressing.

Naphthol has also been lately recommended as an antiseptic, to take the place of carbolic acid. Care should be taken that the two substances be not confounded.

Improved Gas Stoves.

THE system of constructing gas-burners and gas stoves, as shown in the accompanying illustration, marks a considerable improvement, inasmuch as the mixture of gas with atmospheric air is rendered much more perfect at a considerable distance from the place of combustion, so that the resulting flame is almost or entirely blue, without giving light or making smoke.

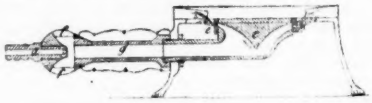


Fig. 1.

The principle on which they are constructed is shown in the illustration, Fig. 1. At *a* the gas enters, and is made to pass through a narrow orifice at the other end of the small branch, for the purpose of projecting the current with some force forward into the mixing tube *g*. The

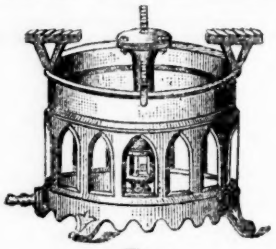


Fig. 2.

jet of gas thrown into *g* causes a current of air to be drawn in at *f f*, and to be mixed with it. The mixture issues at *e e*, and is there burned.

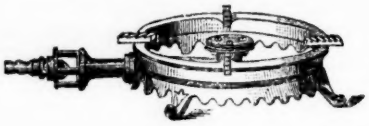


Fig. 3.

Figures 2, 3 and 4 show the form of gas-stoves constructed on this principle (Wobbe's German patent, class 34, No. 17,588). This principle is, however, more or less applied in all modern gas-stoves, among the best of which we reckon Fletcher's well-known series, and the "Economy Gas Furnace," made by the American Meter Com-

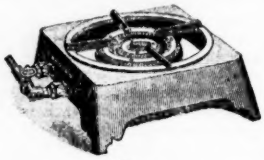


Fig. 4.

pany of New York and Philadelphia.* The latter, which has two concentric rings of burners, each of which may be lighted or put out in a moment, and each of which burns with a flame directed towards the object standing on the stove, has given very great satisfaction in our hands. Fig. 4 represents the last-named kind of gas-stove, though there has been additional improvement introduced lately, namely, a separate stop-cock for each set of rings.

* Office, 512 West 22d st. These gas-stoves are sold by dealers generally.

Orange Growing and its Profits.*

BY REV. T. W. MOORE.

WHEN compared to the profit from other kinds of business. that derived from orange-growing is so large that a statement of facts is often withheld because the truth seems fabulous to those who have only had experience with other kinds of fruits.

Those engaged in the business consider each tree, as soon as it is in healthy and vigorous bearing, worth one hundred dollars. Indeed, the annual yield of such a tree will pay a large interest on the one hundred dollars—from ten to a hundred, and in some instances one hundred and fifty per cent per annum.

Now if we take into consideration that from forty to one hundred trees are grown on an acre, the yield is immense.

In the quiet country, breathing its pure atmosphere, with fresh fruits and vegetables from January to January, with milk, butter, honey, and poultry, the product of his farm and accessories to his grove, the man who has once brought his trees into successful bearing can enjoy all these and much more besides, having at his command an income quite equal to that commanded by owners of blocks of well improved real estate in our towns and cities, with not one-tenth part of the original cost of city investments. Or, if the owner chooses, he is at liberty to go abroad without fear of the incendiary's torch or the failure of commercial firms. And even if a frost should come severe enough to cut down full-grown trees—and but one such frost has come in the history of Florida – the owner has but to wait quietly for three years, and out of the ruin will come a second fortune as large as the first, and without the cost of brick, mortar, and workmen.

The age to which the orange tree lives, from three hundred to four hundred years, is so great that Americans do not know how to consider it in the light of a permanent investment. The fear has sometimes been expressed that the business will be overdone, that the supply will after a while exceed the demand, and the price of the fruit so decline that the orange will be unprofitable to the grower. But those who entertain this fear have certainly not considered the facts.

The area of the States with climate suitable for growing the orange is comparatively small.

The southern portion of California, a very small part of Louisiana, and the whole of Florida, if devoted to orange culture, is but a trifle compared to the vast sections of the United States which will be well filled with inhabitants long before the orange-growing sections can be brought into bearing. The present yield of fruit grown in the United States furnishes hardly one orange a year to each inhabitant. Our population will likely double, judging the future by the past, in the next thirty or forty years. To furnish such a population with one orange or lemon a day, will require no less than thirty thousand millions of of oranges or lemons per annum. The skill in gathering, curing, and packing the late and early varieties now appearing will enable the grower to furnish for the market at all seasons of the year either oranges or lemons

The wholesomeness of the fruit, together with its medicinal qualities, will increase its popularity as an article of food, until it will be universally used. At present the production of Florida oranges is so small that it is not known in the markets of many of our largest cities. The foreign varieties offered in those markets, even when fully ripe and eaten fresh in their own countries, will not compare with the Florida orange. But in order to reach this country in sound condition they have to be gathered when green, and hence are not only unpalatable but unwholesome. When the Florida orange becomes generally known, and the supply is adequate, it will exclude foreign fruit, and because of its excellence, become universally used, such will be the demand. Already successful shipments have been made to Europe, which at no distant day is to get its best oranges in large quantities from Florida.

Now note the possibility of supply. Only a small proportion of those sections with climate sufficiently mild to grow the orange can ever be made available. The long dry seasons of California prevent the possibility of growing this fruit in that State except by irrigation, while the estimated yield per tree is only six hundred oranges. In Louisiana the possible area is but small. In Florida the climatic conditions are more favorable but the land and locations suitable are not one hundredth part of the State. Another fact lessens the possibility of yield. Orange culture belongs to the class of skilled labor. Hundreds engaged in the business will fail, because success requires intelligence, application, patience, and skill. Hundreds have already failed from one or all of these causes, and have left the State, never dreaming that they alone are to be blamed for their failure. Men in the very communities thus abandoned have succeeded because they were more prudent in the selection of soil and location, and used their intelligence and the intelligence of others, and persevered in the face of partial failure brought about by ignorance.

But those men who failed took no advice except that of the land owner who offered to sell land cheaper than any one else. They read nothing that had been written by men who had succeeded. They took no warning of those who had failed. Stilted on their castle of self-conceit they stood, nor deigned to look down to the humble but prudent laborer for advice, till their castle fell, and they left the State imagining that the "sand of Florida" had proven an unstable foundation and overthrown them and their castle. Such instances will repeat themselves. Whoever may succeed, such men will fail. Whatever may be written, and wisely written on the subject, and however published, whether in book or journal, will not be read by them. But while the above facts will lessen the general yield of oranges, it will make the business vastly more profitable to the men who possess the virtues necessary to success. The orange will pay beyond any other fruit at half a cent an orange on the tree. In Europe, where lands are exceedingly high, a grove is considered a most profitable investment, even when the fruit sells at from two dollars to four dollars per thousand. Ten years ago the Florida orange was considered well sold when the grower could get one cent on the tree. Few now sell for less than one and a half cent, and some average at their groves as high as four cents per orange, and the price still advances.

In no business can a young man with pluck, intelligence, and application, so certainly lay the foundation for a competency and fortune as in orange growing in Florida. With the exercise of these he may in ten years be what the country would call a rich man.

A young man from middle Florida borrowed money enough from his father to buy a piece of land. After paying for his land, located a few miles above Palatka, he landed in Palatka with three dollars in his pocket. These he paid for provisions, and went to work growing vegetables on about an acre and a half of cleared land. Six years afterward he sold his place for twelve thousand dollars cash, without owing a cent for anything. Many instances could be given, of young men, as well as old men, who have done as well and of some who have done still better. Young men have frequently written to the author to aid in securing for them a clerkship. His advice has been invariably given, "Go to work raising fruit in Florida, and be independent and have a home."

We clip the following statistics of making an orange grove in California from the address of Mr. L. M Holt, Secretary of the Southern California Horticultural Society. It will be observed that the rates are far above those charged in Florida in some of the items, land for one:

"An orange orchard in full bearing will yield 100,000 oranges to the acre. Five dollars per thousand will pay all expenses of taking care of the orchard and picking and marketing the crop in San Francisco, or to any other market to which the freights are no greater. If the price should come down from the present figure to ten dollars

* (From *Treatise and Handbook of Orange Culture in Florida*, by Rev. T. W. Moore. Second edition, 8vo. New York: E. R Pelton & Co; Jacksonville: Ashmead Brothers. Printed by permission of the publishers.)

per thousand—jobbing rates—there will still be left five dollars per thousand, or five hundred dollars per acre for the producer, which on a ten-acre tract will satisfy the cupidity of the most avaricious. There is scarcely a possibility that the price of good clean oranges will reach so low a figure as ten dollars per thousand yet, for years to come.

"As a guide to those who may desire to figure on the probable expense of starting an orange orchard, I give below some figures which are applicable to Riverside; they must be changed somewhat for other localities. Land in Riverside settlement is comparatively high. One year ago good wild land could be obtained for seventy-five dollars per acre, and even at sixty dollars per acre under the canals. To-day there is none for sale at a less figure than one hundred and fifty dollars per acre, and choice land in good localities is held at two hundred dollars per acre firm. Lower priced lands can be had in other localities, and in no place in Southern California does it command as high a figure as here in Riverside.

"In applying these figures to other localities, the price of land can be figured all the way from twenty-five to one hundred dollars per acre. Following are the figures for a ten-acre tract:

Ten acres of land in Riverside,	$1,500
One thousand trees, budding or seedling,	750
Planting and caring for same first season at $25 per acre,	250
Caring for orchard second year, at $15 per acre,	150
Third year, $15 per acre,	150
Fourth year, $20 " "	200
Fifth year, $25 " "	250
Other expenses incidental to work,	550
Total for five years,	$3,800
Interest on investment,	1,200
Total,	$5,000

"This is the expense account; there will be some receipts. If good budded trees are planted, the third year will give a little fruit, the fourth year still more, and at the end of the fifth year there will be quite a fine crop. In order to be safe in these calculations, we will place the yield and prices at the lowest possible estimate:

Third year crop, scattering oranges—a few hundred or thousand—not counted.	
Fourth year, an average of fifty oranges to the tree—50,000 oranges at $20 per 1,000,	$1,000
Fifth year, 200 to the tree—200,000 oranges at $20 per 1,000,	4,000

"If these prices are maintained, the owner has his investment all back again at the end of five years, and is ready to ship oranges in large quantities every year thereafter.

"All persons planting orange orchards do not do as well as this, and some do better. Those figures represent what can be done with good judgment and thorough work. If a man thinks to save by getting cheap and incompetent work, he may succeed in reducing the cost a few dollars, and the receipts a few hundred dollars, or even a few thousand dollars. If he buys a poor tree he can get it for twenty cents, instead of paying the market price for a good thrifty tree, he will make another saving in cost of orchard, and in cost of boxes in which to ship the fruit.

The Gelatin Bandage.

As a supplement to our article on the gelatin bandage (Sept. number, p. 269), we will add that a great deal depends on the kind and quality of the gelatin used. According to *Casop. cesk. lékar.* (17,260, in *Pharm. Rundschau*, Leitmeritz, No. 28), the best commercial gelatin, for salicylic acid, iodoform, etc., is that known as: "Gelatin extra. Coignet père et fils et Comp., Paris. 1st quality, gilt-label." Whenever the gelatin coat is to remain transparent, this brand alone is to be used. For carbolic, pyrogallic acid, and naphthol, the "second quality, gilt-label," is sufficiently good. The "silver-label" gelatin, of the same firm, is only fit for chrysarobin and ichthyol. Zábsky recommends remelting the gelatin, after it has been prepared as stated in the paper on page 269, and to pour it out again; this improves it. Any drug to be incorporated with it should first be thoroughly rubbed and mixed with a little water.

Arsenical Glass a Source of Error in Testing for Arsenic.

In commenting on a paper by W. Lenz "On the Purification of Hydrosulphuric Acid Gas for Chemico-Legal Investigations," published in the *Zeitsch. f. Anal. Chem.*, Dr. W. Fresenius remarks that whilst in toxicological researches the reagents have been always carefully tested for arsenic, no one has suspected that the glass apparatus employed, if containing arsenic, might give occasion to errors. Such a result, however, appears, according to the author's observations, perfectly possible. It is well-known that arsenious acid is often used in the manufacture of glass as a decolorizing agent, and it seems that latterly arsenic is more generally and more abundantly present in glass, whether from a more copious addition of arsenious acid or from the use of strongly arseniferous materials. The author's attention was first drawn to this subject when testing a precipitate formed by sulphuretted hydrogen for arsenic by Fresenius and Babo's process. The bulk of the precipitate mixed with soda and potassium cyanide, placed in a tube of Bohemian glass was heated in a current of carbolic acid for a short time, and not too violently. There appeared only a very slight arsenical deposit. On repeating the experiment with the smaller residual portion of the precipitate, heating more strongly and for a longer time in a tube of the same glass, an extremely strong arsenical mirror. This phenomenon led to the supposition that the latter mirror was due to the glass which had been attacked by the melting mixture of potassium cyanide and sodium carbonate. To test this supposition the author made a blank experiment in a tube of the same glass, with a mixture of sodium carbonate and potassium cyanide, perfectly free from arsenic. The result perfectly verified the supposition; if the heat was short and feeble there was no deposit, but after prolonged and vigorous heating a very strong mirror appeared in the tube. The author then examined certain kinds of glass for arsenic, and studied the influence which this impurity may have in the various methods for determining arsenic. The qualities tried were a Bohemian glass with which the foregoing experiments had been made, containing 0.20 per cent of arsenic and 0.05 of lead; a refractory glass from Thuringen containing 008 arsenic and 0.96 lead, and a third refractory glass containing per gram a quantity of arsenic not ponderable and 0.09 per cent of lead. On making blank experiments as above with all these three kinds of glass, mirrors were obtained; that with the last kind being by far the slightest.

If the mixture was placed in a porcelain boat which had been previously ignited and was thus prevented from coming in direct contact with the glass, the experiment being otherwise conducted exactly according to Fresenius and Babo's method, no arsenical mirror was obtained even on intense and prolonged heating. Pure sodium carbonate alone, if heated in a current of pure hydrogen gas, gave an arsenical reaction, with all three kinds of glass, though very slight with the last-mentioned kind. A current hydrogen alone produced no arsenical mirror, but with the two first-mentioned kinds of glass there was produced a brown coloration at the spot where the flame played directly upon the glass. This browning has generally been attributed to the presence of lead, but the author considers it due to arsenic, as it was strongest in the Bohemian glass, which contained much arsenic and but little lead, and did not appear at all in the third, which contained twice as much lead and a mere trace of arsenic. Further experiments are made to show whether aqueous solutions of acids or alkalies were capable of taking up arsenic from glass. It was found that such an extraction is possible in case of alkaline liquids, but it is not to be apprehended with acids. The presence of ar-

senic in the glass is not likely to lead to error in the Marsh process, as it would be detected in the preliminary examination before adding the suspected substance. In the Fresenius and Babo process, the substance with the reduction mixture should be placed in a porcelain boat, introduced into a tube of glass as free as possible from arsenic, and cautiously dried in the current of carbon dioxide before applying a high temperature. The author finally remarks that non-arsenical glass was formerly a common article of commerce, though it cannot now be procured.—*Chemical News.*

Pyridine (and Pyrrol?) in Commercial Water of Ammonia.*

COMMERCIAL water of ammonia often contains small quantities of pyridine, which fact is not surprising, since the ammonia is derived from gas-liquor which contains also pyridine. This latter may be detected in the ammonia by incompletely neutralizing it with hydrochloric acid. Pyridine combines with the acid last, and is easily recognizable through its intense odor. In order to prove its presence, the water of ammonia is nearly, but not quite, neutralized with hydrochloric acid, and then distilled. The distillate is caught in hydrochloric acid, the liquid evaporated to dryness, the dry residue extracted with absolute alcohol, and the latter solution, after evaporation of the alcohol, precipitated with platinic chloride. After separation of the double chloride of platinum and ammonium, the mother-liquor yields, by crystallization, the double chloride of platinum (platinic) and pyridine, in orange-red, smooth, branching, and anhydrous prisms, which are easily soluble in hot, moderately in cold water. When heated with water, they rapidly decompose, with separation of the difficultly soluble, light-yellow double-platinous chloride. 2½ kilos of a crude ammonia obtained from C. F. A. Kahlbaum yielded several grams of pyridine. It was also found in a crude ammonia obtained from Erdmann in Leipzig (Lindenau); not, however, in the samples marked "pure." Dr. Bannow (of the firm of Kahlbaum) states that most crude ammonia contains pyridine, and still more commonly, probably, pyrrol; at least many ammonias, when supersaturated with acids, assume a red color (pyridine), and when distilled, give off, towards the last, an odor of pyrrol.

Chemical Character of the Violet Color in Ergot, and its Detection in Flour.

R. PALM reports that the coloring matter in ergot is not, as commonly supposed, combined with alkaline earths, and describes its behavior with solvents and reagents. For its detection in meal, the sample, previously dried, is extracted at 30° to 40° C. with ten to fifteen parts alcohol of thirty-five to forty per cent (Tralles), with the addition of a few drops of ammonia. The mass is then carefully pressed out, the liquid thoroughly precipitated with basic lead acetate, the precipitate is collected on a filter, pressed between folds of bibulous paper, and the residue, whilst still moist, digested with a saturated solution of borax at a very gentle heat. The solution, if ergot was present, takes a characteristic violet color. For detecting ergot in bread, the sample is dried and powdered, and heated gently for five to ten minutes with ten to fifteen parts of alcohol of forty per cent. The liquid is filtered through animal charcoal, the filtrate evaporated almost to dryness on the water-bath, and the residue, still moist, is extracted with alcohol of forty per cent. The solution is again filtered through animal charcoal, and perfectly precipitated with basic or neutral lead acetate.—*Zeitsch. f. Anal. Chem.*

To Drive Away Rats and Mice.

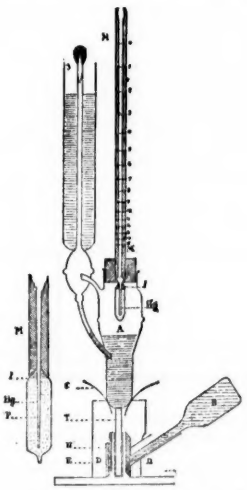
SEKERKA recommends to pour common tar into the rat or mice holes, which either kills them at once, or will, at least, make the locality uninhabitable and unpassable for them, since it takes a long time to try.

* H. OST, in *Journal f. prakt. Chemie*, vol. 28 (1883), p. 271.

Perrier's Alcohol-Manometer for Finding the Strength of Alcohol.

SOME time ago (NEW REM., 1882, 166), we gave an illustration and description of an apparatus to determine the alcoholic percentage in a liquid by means of its boiling point. At present we are about to describe an apparatus in which the percentage is indicated by the level to which mercury rises when lifted by the vapor of a low-boiling liquid. The accompanying cut illustrates the arrangement.

. *A* is a peculiarly-shaped boiler intended for the reception of the liquid the alcoholic strength of which is to be tested. This boiler, together with its support *T*, is placed over the spirit-lamp *D*, so that a rod or tube projecting from the end of the boiler enters the central tube of the lamp. *B* is a reservoir for alcohol for burning; it flows out below in drops, and maintains the level of the alcohol in the lamp. *R* is a condenser filled with water, and provided with the indicator *J*, which is a small nickel mirror. The boiler *A* is closed with a stout rubber stopper carrying



Perrier's Alcohol-Manometer.

the manometer *M* (see principal cut). The construction of the latter will be understood from the smaller cut. Namely, the long bulb of the manometer is closed on both ends, except that a tube passes through the upper end and terminates near the bottom. The bulb is filled with mercury, but a small portion of the upper parts of the bulbs at *l* is charged with a low-boiling liquid. If this becomes at any time converted into vapor, it will exert a more or less energetic pressure upon the mercury below it, and will thereby compel more or less of the latter to rise in the bore of the manometer. As soon as the lamp has been lighted, the mercury begins to rise, and the mark on the manometer is read off when a faint film of alcohol vapor begins to show itself on the nickel indicator. The degrees of the manometer correspond to the percentage of alcohol.

Care must be taken, when using this apparatus, to prevent strong draughts of air from coming in contact with it, to carefully rinse out the boiler *A* with a portion of the liquid to be tested before the operation, and to employ in the lamp a wick which will not project over it. For burning, an alcohol of 80% or 90% should be used.—After *Pharm. Centralh.*, No. 37.

BEES taken to Florida become lazy, and make only as much honey as they need from day to day.

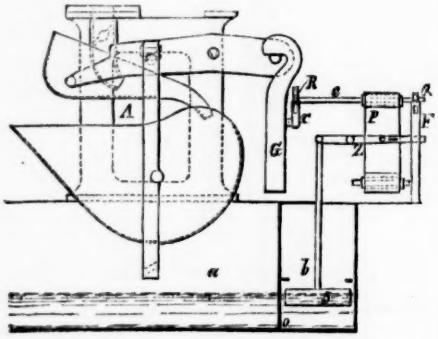
The Reddening of Carbolic Acid.

A CORRESPONDENT of the *Pharmaceutische Zeitung* writes on this "revolving" subject as follows.

I have been engaged for a number of years in a wholesale drug house at Berlin, and have handled more carbolic acid than was pleasant to me. While putting larger quantities —as, for instance, when filling the contents of a 25-pound tin can into half-kilo bottles—I found several times that the originally colorless acid became red on being melted.

Having subsequently entered the retail business, I had occasion to see carbolic acid obtained from other wholesale houses, and found my former experience confirmed. It was contained in tin cans holding 12½ pounds, and when melted nearly always turned red; on one occasion it became even as dark as red wine. Of course, it had to be reserved for ordinary uses, and it was chiefly used for making carbolic-acid water. In doing so, it was noticed that the water gradually became colorless and deposited a sediment of ferric oxide.

I am therefore inclined to believe that reddened carbolic acid has acquired its color from defective spots in the tin-coating of the iron cans, thereby taking up some of this latter metal.



Automatic Apparatus for Weighing and Determining the Specific Gravity of Liquids.

THIS apparatus is invented and patented by Christoph Munner, of Köln. It is primarily intended for factories where the density of liquids is to be determined very frequently or continuously.

As soon as a sufficient weight of the liquid to be tested has been poured, or has flowed of its own accord, into the scale-pan *A*, the latter, owing to its peculiar shape and balance, tips over and empties itself into the reservoir *a*. While tipping, it causes the other arm carrying the weight *G* to ascend, and this motion causes the axles *e*, on which a strip of paper is rolled, to revolve a certain distance. The reservoir has a separate chamber, communicating with the main reservoir by the opening *o*, and thereby constantly preserving the same level as the latter. In this chamber is a float which rises and falls with the level of the liquid. When rising it turns the index *z*, which is provided with a sharp point, and which makes a pin-hole in the paper as soon as it has come to a rest. As soon as the float begins to sink, the point recedes from the paper again. By suitably ruling the paper-strip, and taking account of the temperature, the successive specific gravities may be at once read off.

Tincture of Iodine.

IN a note in the *American Journal of Pharmacy*, F. C. Lehman says that, in making tincture of iodine, U. S. P., the addition of a small quantity of common salt quickly causes the iodine to dissolve, and the use of the mortar may be thus obviated.

The Ferrocyanide Test for Quinine.

IT is well known that a red color is produced in a liquid containing even traces of quinine if some chlorine water be added to it, then a few drops of fresh solution of ferrocyanide of ammonium, and lastly a little water of ammonia. The same method of testing, with omission of the ferrocyanide, produces a green color, the so-called thalleioquine. The first-named test may be improved, according to Vogel, if bromine water be used instead of chlorine water, and if a little carbonate of ammonium or phosphate of sodium (disodic phosphate) or borax solution be added after the ferrocyanide. Bromine water has the advantage that it may be prepared at a moment's notice by shaking a drop of bromine with water, while chlorine water is difficult to keep and frequently not at hand when wanted.

Fumigating Tablets.

AD. VOMÁCKA directs to melt together 20 parts of benzoin, 20 of balsam of Tolu, and 40 of balsam of Peru, at as low a heat as possible, and add to the melted mass 150 parts of so-called "Bretfeld spirit" (see below). When the mixture is cool, add 4 parts of acetic acid, 2 parts of tincture of musk, and 1 part of oil of rose, and mix the whole with enough magnesia or infusorial earth to make a plastic mass free from adhesiveness. Roll this out, and cut it into round tablets, about 3 to 5 centimeters in diameter, which are to be wrapped in tin-foil. The "Bretfeld spirit" is prepared by digesting 230 parts of orris root, and 0.15 parts of musk in 2000 parts of alcohol, filtering after sufficient maceration, and adding to the filtrate 60 drops each of oil of rose and lemon, and 70 drops of oil of neroli.

These tablets, when laid upon a hot stove or other places having a proper temperature, diffuse their aroma very uniformly and much more pleasantly than is usually the case when some other forms of fumigation are used.—After *Pharm. Rundschau* (Leitmeritz), No. 23.

Iodoform Suppositories for Hæmorrhoids.

Iodoformi	gm. 4	60 gr.
Balsami Peruviani.....	" 8	120 "
Olei theobromæ.....	" 6	90 "
Ceræ albæ	" 6	90 "
Magnesiæ	" 4	60 "

M. Make into twelve supppositories. After each passage one to be inserted.

Preservative for Furs, Stuffed Animals.

CRUSH 125 gm. of colocynth apples, and boil them with ½ liter of water and 25 gm. of Socotrine aloes. After the mixture has boiled down to about one-half, strain it, while hot, through muslin, with pressure. At the same time, 500 gm. of brown resin-soap and 250 gm. of yellow soft soap are mixed to a homogeneous mass, with a little water, over a gentle fire, and the strained colocynth and aloes solution added, under constant and careful stirring, with the further addition of 125 gm. of glycerin and 40 gm. of rape-seed oil. When the whole is carefully mixed, remove from the fire, and add 50 gm. of finely-powdered naphthalin, 35 gm. of oil of turpentine, and 80 gm. of crystallized carbolic acid, previously mixed with a little alcohol. Mix thoroughly, and fill into suitable vessels, which must be kept well closed, until it is wanted for use.

To be rubbed into or upon the skins, etc., of animals to be preserved. If the preparation has become too thick, it may be diluted with a little oil of turpentine.

To Preserve Mushrooms

As specimens, a correspondent of the *Pharm. Zeitung* recommends to prepare a thin longitudinal section which represents the whole structure of the fungus, to spread this out upon a plate of glass, and to paint its upper surface with mucilage which penetrates the pores und displaces the liquid. When dry, the section may be pasted upon glass by moistening the gummed side.

Another correspondent of the same paper recommends to preserve the mushrooms in pure glycerin.

Nickel Crucibles.

M. MERMET recommends the use of nickel crucibles instead of silver, in chemical manipulations. They are slightly attacked, it is true, by melted potash, but silver itself is not indifferent to this action. They cost at first much less than silver, and moreover they have the great advantage of melting at a higher temperature. It often happens, in fact, that inexperienced chemists melt their silver crucibles in heating them over a gas lamp; such an accident is not to be feared with nickel crucibles.—*Chem. Indust.*

Hungarian Cosmetic (for the Beard).

Spermaceti	50 parts
Wax (yellow or white)	200 "
Water	500 "
Gum Arabic	150 "
Soap	100 "
Glycerin	50 "
Oil of bergamot	5 "
" " geranium	5 "

Mix the finely-cut soap and finely-powdered gum Arabic with 200 parts of the water to a uniform paste, melt the wax and spermaceti with 300 parts of the water, upon a water bath, and when they are melted, gradually add and incorporate the soap-paste, constantly stirring. Remove the heat, add the glycerin very gradually, and allow it to cool, continuing the stirring. Then add the aromatic oils, or, in place thereof, any other that may be preferred.

This formula yields a very good product, which may be kept for a long time unaltered, in well-closed vessels. In order to produce the proper color, it is necessary to add. For *brown:* add a sufficient quantity (more or less, according to the depth of tint desired) of burnt umber or sienna, which are to be triturated with the glycerin to a fine paste, entirely free from grittiness. For *black:* add a proper amount of lamp-black to the brown cosmetic. Too much lamp-black makes the cosmetic sticky and smeary.

In the case of colored cosmetics, yellow wax may be used. For *white* cosmetic, however, white wax must be employed.—*Ad. Vomdcka* in *Seifenfabrikant.*

A New Test for the Purity of fixed Oils.

MR. WILLIAM FOX, F.C.S., has contributed a paper to *The Analyst* (July, 1883), in which he describes a new method of examining fixed oils for their purity. This method depends upon the fact that different fixed oils have been found by the author to absorb different quantities of oxygen gas. By "absorbing" is meant that peculiar combination of oxygen with the oil which is commonly known as "drying" or "thickening."

The following table shows the great difference in the power of absorbing oxygen possessed by a few of the more important fixed oils:

1 *Gram of*	*Absorbs of Oxygen*
Linseed oil, Baltic	191.0 cubic centimeters.
" " Black Sea	186.0 " "
" " Calcutta	126.0 " "
" " Bombay	130.0 " "
" " American	156.0 " "
Cotton seed oil, refined	24.6 " "
Rape seed oil, brown	20.0 " "
" " " Colza	17.6 " "
Olive oil, *highest*	8.7 " "
" " *lowest*	8.2 " "

These figures are the mean of a great number of experiments on different samples, closely agreeing with each other, except in the case of linseed oil. The great difference between the Indian and Russian seed oils will be noticed; the latter are the oils used for varnishes and floor cloth making. The Indian seed oil never becomes quite dry, but always remains "tacky."

The process of the author consists in heating a weighed quantity (about 1 gm.) of the oil in a *sealed* glass-tube having a capacity of about 100 cubic centimeters, with 0.5 gm. of precipitated oxide of lead, and heating the tube in an oil bath for several hours at 220° F. A portion of the oxygen of the air inclosed in the tube will thereby be absorbed by the oil. The amount thus absorbed may then be estimated by the decrease in the volume of the gas in the tube, when it is opened under water or another suitable liquid; or, the remaining gas may be measured, and the unabsorbed oxygen absorbed with pyrogallic acid and potash.

These determinations have to be made under the usual precautions to be observed when measuring gases: special attention having to be paid to temperature and pressure. For this reason, the process will probably be unsuited for commercial or pharmaceutical purposes, except where special apparatus and the requisite skill and experience are available. Nevertheless, we have considered it of interest to draw attention to the proposed method.

Chrome-Water.

ACCORDING to the *Pharmac. Centralhalle*, the name chrome-water has been given to a carbonated water containing in each bottle (of about 600 gm.) 0.03 gm. (or ½ grain) of bichromate of potassium, together with 0.1 gm. (about 1½ grains) each of nitrate of potassium, and nitrate of sodium, and 0.2 gm. (3 grains) of chloride of sodium. It is recommended by Dr. Güntz in Dresden not only as a strong antisyphilitic, but even "as a prophylactic against syphilis." [We give the item for what it is worth; and we believe that the *Pharmac. Centralhalle* would probably not have mentioned it, except as an answer to a correspondent.—ED. N. R.]

Detection of Free Acid in Presence of Salts.

OSCAR MILLER has made experiments with a number of indicators for the purpose of ascertaining their adaptability to the discovery of free acids in presence of salts, as, for instance, sulphuric acid in presence of sulphate of aluminium.

He found that tropæolin (No. 00) is not altered by sulphate of aluminium, but is too slow in its action with free acids. [Free acids redden it; in this respect, tropæolin "No. 000" is still better.—ED. N. R.]

Ethyl-orange is extremely sensitive against free acids; but it is affected also by neutral sulphate of aluminium, which colors it rose-red.

Methyl-orange is equally sensitive against free acid, and is only colored orange (not rose-red) by neutral sulphate of aluminium; the further change into rose-red, by free acid, is therefore easily distinguished.—*Ber. d. D. Chem. Ges.*, 1883, 1991.

[*Note.*—Methyl-orange is also known as Orange III., Helianthin, Gold-orange, and Tropæolin "D." Chemically it is dimethyl aniline-azo-benzol sulphonic ammonium or sodium. It imparts to a liquid containing even a trace of free acid a pale but distinct rose-red color, which is best observed by having the beaker containing the solution standing on white paper. The reaction is just visible in presence of one part of sulphuric acid in one hundred thousand parts of water. It is best to use the reagent in the following way: After the contents of the beaker have been stirred, a drop of the methyl-orange solution is allowed to fall into it, and the appearance about the place where the drop fell is to be carefully noted. The reagent being there less diluted, the tint is more quickly observed. The above described method may be used with advantage in the examination of *vinegars.*—ED. N. R.]

Cinchona in Guatemala.—The Republic of Guatemala has arranged with a well-known Ceylon planter, Mr. W. Forsyth, to select seed for 5,000,000 cinchona trees. Mr. Forsyth has ridden 1,000 miles through Central America in search of the best sites. He states that the rapid increase in the number of uses to which cinchona bark is put, not only for the manufacture of quinine and as an ingredient in the substitute for hops, but also for various commercial purposes, has led President Barrios to try the experiment.—*Chem. and Drugg.*

History of the Demijohn or Carboy.

THE word belongs to no European language, but has been adopted, like tea, sugar, coffee, and other articles which come from Eastern sources. Demijohn dates from the crusades, and was brought from Egypt, where such articles were and are still called *damagan*. What is still more singular is the fact that the custom of surrounding glass bottles with wicker-work dates from very early times in Egypt. Upon frescoes in tombs at Beni Hassan, there are not only representations of wine in glass receptacles, but also of oil bottles, almost precisely like the flasks from Lucca and Bordeaux, surrounded with a similar protection made of similar materials, rushes, papyrus, and wicker-work of a fine kind. No picture has been so far recorded of the actual demijohn at that early date (2000 B. C.), but as we have the finer variety of the article, we cannot doubt that the coarser one existed also. Egyptian wine was stored in amphoras, and the demijohn was a convenient half-way measure between the clumsy, huge amphora and the delicate glass vessel in which it appeared at the table; so that the beloved demijohn is of the most respectable ancestry, and held its own in the world's earliest civilization.—*The Chemist and Druggist.*

NOTE by ED. of N. R.—According to Marsh (*Lectures on the English Language*, Lect. iv.), the word has once been derived from the proper noun Dâmeghân, a city in Tabaristân, which was celebrated through its glass-houses. This may be so, but there is no basis whatever—beyond the guess—for this etymology. This view is shared by others, notably by Dozy (in his *Supplément aux Dictionnaires Arabes*, i., 459), who says: "*Cette étymologie est peu satisfaisante.*" The last-named authority also states that the Mohît al-Mohît (a dictionary published in 1870, at Beirut, by Butrus al-Bistânî) quotes the forms *damachâna* (damachânat), *dâmichâna* and *damanchâna*, and says that they are Persian But up to the present time, these words have not been met with in any Persian writer or glossary; and, in the shape above given, they do not recall any word or words from which they might possibly have been corrupted. According to Dozo, the word is also quoted, under the form *dâmachâna*, by Berggren, *Guide français-arabe vulgaire*, Upsal., 1844, and by Marcel, *Vocabulaire franç.-arabe des dialectes vulgaires africaines*, Paris, 1837.

The Pitch Lake of Trinidad.

BY JOHN FOWLER, U. S. CONSUL AT TRINIDAD.

I VISITED the so-called Pitch-Lake, Trinidad, September 30th, 1882, landing per steamer at la Brea, on the west coast of Trinidad, about forty miles south of the port of Port-of-Spain. The lake in question is situated about one and one-half miles from the shore. There is a gentle ascent of one hundred and forty feet from the shore to the lake.

The name "lake" is a misnomer, if we understand by the term a cavity containing a liquid. The contents of this cavity, or supposed cavity, is a concrete, slightly flexible mass of pitch; it is a level plain, on which bushes and patches of vegetable formations, and pools of water are seen here and there over the surface. There is no difficulty in walking or wading over it from end to end, or from side to side. The shape of this plain is a sort of ellipse, or ovoid. The water in the pools is rain water, having a slight iron taste.

Arriving on the plateau, I found, first, a number of chestnut-colored females washing and bleaching linen, and, in other parts, a number of two-wheeled carts, drawn each by a single horse, in the act of being loaded with pitch. Scattered here and there over the surface, were to be seen dark, yellow-brown-colored men with pickaxes digging out large clods of pitch, which boys gathered out from the pit and piled up for the carters. The pitch, at almost every blow of the pickax, broke off, with a resinous fracture, quite easily.

Each lump of pitch exhibited air cavities of the size of a pigeon's egg, larger or smaller. I was informed by the diggers that they never dig deep enough to find the pitch soft and plastic; but they asserted that, in the course of a couple of days, the cavity which they had dug would be again level with the surrounding plain. This assertion, I think, must be taken with considerable reservation; for I do not believe there is now any force below that would cause the pitch to rise, and I discovered no *fumerolles* anywhere that would indicate an internal fire. Besides, wherever there is a water pool, there is an indication that pitch has been dug out. There is, however, a probability that the rough surface of a pit may be softened by the heat of the sun during the dry season, and thus partially levelled.

This pitch deposit, I imagine, like any other mineral deposit, will become entirely exhausted in the course of time, resembling, in this respect, our oil wells in Pennsylvania. But it will take a long time to do this; for the area of this visible deposit is about 100 acres, which is equivalent 4,360,000 feet, and 4,360,000 feet surface and 1 foot deep will give the same number of cubic feet. Now, allowing the weight of 1 cubic foot of pitch to be 60 pounds (it is really more), we shall get by computation 261,360,000 pounds, which number, divided by 2,240, gives 116,678 tons for the weight of a single layer of pitch on Pitch Lake 1 foot deep.

We will now suppose that 60,000 tons of pitch (this year 30,000 will be near the real amount) are dug out annually; we shall find that this first layer of pitch will supply the world for two thousand years.

How deep this pitch deposit is absolutely, is not yet known with accuracy, or even approximately. The whole ground, under a thin layer of soil or sand, to the ocean, is pitch, and there is (I have been informed and have myself partially seen) an outcropping of pitch on the beach of the Gulf of Paria at different points, for five or six miles north and south of La Brea. This deposit of bitumen or asphalt is, therefore, from all appearances, inexhaustible for thousands of years to come.

This deposit of asphalt belongs to the colonial government of Trinidad, and the right of exploitation of the entire Pitch Lake, with the exception of five acres reserved for government purposes alone, is leased out to three parties, namely, Conrad F. Stoelmeyer (represented by his son Charles F. Stoelmeyer, and who is at the same time business manager for the company), T. A. Finlayem & Co. (representative of the London Asphalt Company), and Thomas Field (representing the American or New York Asphalt Company).

To the United States, asphalt is shipped in a crude state, like clods of clay. In this form, I would recommend it to be always imported to America, because it does not agglutinate in the transit, and may be even carried on the deck; secondly, because the price of the crude asphalt is much cheaper than that of the so-called *épure* asphalt; and thirdly, because our means of boiling asphalt are altogether superior to the method at La Brea.

For the European market, the pitch is made liquid by heat, in which state it is ladled out into flour barrels, and allowed to concrete by cooling. One hundred such barrels filled with pitch weigh about sixteen tons, or three hundred and twenty pounds per barrel.

The crude pitch is transferred from the shore to the ships in boats estimated to contain five tons each.

This pitch is delivered on vessels on the coast for exportation at $3.25 per ton, all charges included.—*Commerc. Relat.*

Brazilian Army Medical Supplies.—There is a good deal of corruption, says the *St. Louis Druggist*, in Brazilian army circles. An ex-Minister of War says that the hospitals in many parts are sinks of financial corruption. Some officers frequently receive for medicines four or five times their active pay, and leeches are hired four or five times a month at 80c. each and every time. Electric collars are supplied at the cost of tens of thousand dollars, and "feeding bottles" figure in the account for over $50,000, "as though," adds the ex-Minister sarcastically, "the military hospitals were nurseries for children."—*Chem. and Drugg*

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

EDITOR NEW REMEDIES, DEAR SIR:—In answer to correspondent, October number NEW REMEDIES, there was a formula of Wei De Meyer's Catarrh Cure published a few years ago; said formula stated that it was composed of bicarbonate of soda, and cost about one-tenth of a cent.

On page 314, in the trouble between Dispenser and Prescriber, I am of the opinion that Dispenser is right and M.D. wrong. A solution of acid hydrochloric, chlor. pot. and water is not chlorine mixture. Neither is it a private formula, but one that is now and has been very common amongst druggists since I have been in the business (now twenty years). I should put up the prescription exactly as he did. It would certainly be more courteous in the physician to have a private understanding with the dispenser than to advertise him publicly as being incompetent. It does the physician himself more injury than good, besides making an enemy of the pharmacist. Some physicians like to parade a great deal of knowledge to the public and some try to make the pharmacist appear ignorant. It is too true that there are a large number of ignorant would-be pharmacists. Then, again, there are an equal number of M.D.'s on the other shelf. There is a great deal of bickering between the two professions, caused principally, I presume, because the market is overstocked with both kinds. Each should learn to have a little more charity for the other, and, above everything else, keep their misunderstanding between themselves, and not advertise themselves to the public. G. H. H.

Fastening Pestle Handles (see page 284).

Mr. John M. Harvy, of Wilmington, Del., writes us that he has found a cement of litharge and glycerin, as suggested for other purposes, to work well as a fastening for pestle handles.

No. 1,180.—**Pott's Powder** (see page 317).

We have as yet been unable to find a formula for this powder, but Mr. Sheppard, of Boston, says that the nearest thing in name to it with which he is acquainted is "*Potter's Powder*," composed of equal parts of carbonate of ammonium, precipitated chalk, and powdered camphor.

No. 1,181.—**Lager Beer** (H. M.).

The correspondent asks for the best formula known to us for making lager beer. This is hardly a question that can be answered here, since it would involve a greater space that we can give to a subject having no relation to pharmacy, even if we were able to do so. The process is by no means so simple as the inquiry might lead one to infer. The article on Beer in "Ure's Dictionary of Arts," etc, covers many pages of small tpye, and even then it gives only such details as are of general scientific interest, the *practical* details being known only to those who devote much time and money to their acquisition.

No. 1,182.—**Bromine Vaporizer** (M. G.).

The bromine vaporizer mentioned on page 297 has not, so far as we know, been imported. We do not know the exact address of its inventor (A. Frank, of Charlottenburg, Ger. Patent 21,664), but you may learn by applying to Messrs. Goepel and Raegener, patent agents, Tryon Row, New York.

No. 1,183.—**Dermatine**, or **Australian Gum**, which was mentioned by us in answer to query 1,079 (in our last May number, p. 154), as an excellent glue for leather, is wanted by one of our readers. We would be pleased to be informed if any can be procured in this country, and where.

Meanwhile we would recommend our inquirer to apply for information directly to some wholesale house in Australia, for instance, Messrs. Duerdin & Sainsbury, 5 Flinders Court, Melbourne. Possibly an application to one of the United States Consuls would also procure the desired information.

No. 1,184.—**Embalming Fluid** (B. A. N.).

We can recommend several formulas:

1. *Morell's Antiseptic Liquid* (for general antiseptic and embalming purposes).

Arsenious acid	14 parts.
Caustic soda	7 "
Water	20 "
Carbolic acid, sufficient to render the fluid, after stirring, opalescent.	
Then add	
Water enough to make	100 parts.

2. *Muller's Preserving Fluid.*

Bichromate of potassium	2 to 2½ parts.
Sulphate of sodium	1 part.
Water enough to make	100 parts.

3. *Wickersheimer's Preserving Fluid.*

The original formula of this, which was purchased for general use from the inventor by the Prussian government, contained ingredients which were partly incompatible. The composition was gradually modified to eliminate this drawback, and it is now generally prepared in accordance with one of the following formulæ, which differ somewhat according as they are to be used for injecting into a body, or for preserving a body immersed in the liquid.

	For Injecting.	*For Immersing.*
Arsenious acid	16 grams.	12 grams.
Sodium chloride	80 "	60 "
Potassium sulphate,	200 "	150 "
" nitrate	25 "	18 "
" carbonate,	20 "	15 "
Water	10 liters.	10 liters.
Glycerin	4 "	4 "
Wood naphtha	¾ "	¾ "

4. If the object be not so much to embalm or preserve a whole body, but to preserve animal tissues or anatomical or histological specimens, so that they may be transported or shipped in any climate, and be in good condition for subsequent microscopic examination, the following method, communicated by Prof. Welch, of Bellevue Hospital Medical College, will answer:

"Portions of the organs should be cut into small pieces (on the average cubes about one inch in diameter), and placed for four to eight weeks in Muller's fluid (potass. bichrom., 2½ parts; sodæ sulphas, 1 part; water, 100). A large quantity of the fluid should be used, and it should be frequently changed for the first week, until it remains clear. After about six weeks the specimens are removed from the Müller's fluid, and for three or four days are thoroughly washed in frequently changed water, until the water ceases to become yellow, after standing some hours over the specimens. The specimens are then placed either in alcohol, or in alcohol 2 parts; water, 1 part, and after a few days are ready for cutting for the microscope. The spinal cord is cut into pieces about ¾ of an inch long, which remain connected by the membranes, and can be hardened in the above manner, but should not, as a rule, remain longer than a month in the fluid. Small pieces

can be hardened rapidly in strong alcohol. Here it is necessary to take pieces about ½ inch or ¼ of an inch in diameter, and to use a large quantity of strong alcohol.

The chief errors are, not using a sufficiently large quantity of the hardening fluid, or in attempting to harden too large pieces.

It is best to use at least a pint (and preferably more) of the Müller's fluid for six or eight of the cubes one inch in diameter, and to change this fluid several times. The specimens should be obtained as freshly as possible from the autopsy. Well stoppered glass vessels should be used for the hardening.

After the specimens are once hardened by the process described, they can be preserved in a small quantity of alcohol, and can be sent packed in cotton-wool soaked in alcohol."

No. 1,185.—**Hypophosphorous Acid.**

DEAR SIR:—In answer to my query in your journal on hypophosphorous acid, you mention a formula as giving a pure 50% solution of acid, namely, by precipitation of hypophosphite of calcium—$Ca(H_2PO_2)_2$—by concentrated sulphuric acid in presence of alcohol, and the subsequent removal of excess of sulphuric acid with baryta water.

It is known that sulphuric acid has an oxidizing action upon hypophosphorous acid, which takes place under two conditions.

a) $HH_2PO_2 + 2H_2SO_4 = H_3PO_4 + 2H_2SO_3$
hypophosphorous acid + sulphuric acid = phosphoric acid + sulphurous acid.

sulphurous acid being formed as a product of reduction.

b) $3HH_2PO_2 + 2H_2SO_4 = H_3PO_4 + S_2 + 2H_2O$
hypophosphorous acid + sulphuric acid = phosphoric acid + sulphur + water

that is, when hypophosphorous acid is in excess, sulphur is formed as a product of reduction.

Knowing that the above reactions take place under certain conditions, I would ask whether there will be any difficulty encountered in preparing the acid by this process.

Respectfully, E. D. DRAKE.

TOLEDO, O.

Readers of this journal will have read the answers which we have made to the inquiry of Mr. Drake in our September number, p 281, and the supplemental note in our October number, p. 290. In reply to the above communication, which will be read with interest, we would say that in the proportions mentioned in our process, no oxidation of the hypophosphorous acid has ever been noticed, nor have we met with any free sulphur. The sulphuric acid with which the hypophosphite of calcium is decomposed is employed moderately diluted and cold; the decomposition of the calcium salt is instantaneous, so that there is but a trace of free sulphuric acid present at the time when the hypophosphorous acid is already set free. Our failure to find either sulphurous acid or free sulphur in the product prepared by our process would show that no change takes place even at the moment when the two acids change places. We believe the only difficulty will be the management of the process when large quantities are to be prepared at a time. If alcohol is used to precipitate the sulphate of calcium, this should be as far as possible recovered by distillation, and may be used over again. But we would again caution against concentrating the liquid too much at an elevated temperature, since it may "go off" at an unexpected moment.

No. 1,186.—**Hard Paraffin** ("Student").

This correspondent asks: "How can paraffin wax be hardened, so as to be as firm and hard as glue or shellac? Or what coating can I apply to a surface of paraffin that will adhere to it and leave a hard, firm surface?"

We know of no substance that would accomplish this. Paraffin is a general name for a whole series of homologous volatile hydrocarbons produced in the distillation of coal-tar. The hardness of these paraffins depends on the temperature at which they come over and are collected. By making a special arrangement with a manufacturer, there will be no difficulty in having the hardest paraffin collected separately for your special use.

Concerning a substance which might be applied to paraffin to give it a hard and firm surface, we think the choice would be very limited. Any resin or other body soluble in a different solvent from that which will dissolve paraffin, would be liable to peel off. The only substance that occurs to us now as likely to do so is the substitute for shellac made from sludge-tar, described in our volume for 1876, p. 207. This product was named *tunyoap* by the inventor and patentee, Prof. W. P. Jenney, and it was to be had from Cowperthwaite & Co., 62 Beaver street. We do not know whether it is still made.

No. 1,187.—**Stomach Bitters** (Alpha).

1. *Boonekamp Bitters:*

Larch agaric	8 oz.
Lesser centaury	8 "
March trefoil	16 "
Fennel	16 "
Gentian	16 "
Galanga	16 "
Elecampane	8 "
Absinthe (leaves without stems)	32 "
Ginger	32 "
Saffron	4 "
Alcohol, 95 per cent	5 gal.
Water	10 pts.

Macerate for fourteen days; then dissolve 90 minims of oil of curled mint in one quart of alcohol, add it to the liquor, and filter.

2. *Boonekamp Bitters* (another formula).

Socotrine aloes	8 oz.
Myrrh	4 "
Galanga	4 "
Saffron	4 "
Cloves	1 "
Absinthe	1 "
Gentian	4 "
Rhubarb	4 "
Turmeric	4 "
Larch agaric	8 "
Cinnamon	½ "
Fennel	16 "
Alcohol	12 pints.
Water	6 "

In the alcohol, before it is mixed with the water, dissolve:

Oil of absinthe	90 min.
Oil of fennel	90 "
Oil of curled mint	50 "

Macerate for 14 days, then filter.

3. *Danzig Stomach Bitters:*

Anise	100 grm.
Lemon peel, fresh	65 "
Orange peel, fresh	65 "
Elecampane	35 "
Galanga	35 "
Calamus	20 "
Caraway	20 "
Dill	20 "
Orris root	25 "
Turmeric	20 "
Cinnamon	20 "
Nutmeg	15 "
Cloves	8 "
Chamomile	10 "
Alcohol, 75%	21 pints.

Macerate during eight days, then add

Alcohol, 95%	13 pints.
Water, enough to make	18 gal.

Color with caramel.

4. *Hamburg Drops:*

Galanga	200 grm.
Ginger	75 "
Bayberries	75 "
Nutmeg	55 "

Cassia buds	45 grm.
Black pepper	25 "
Orris root, powdered	20 "
Lovage root	20 "
Cloves	15 "
Capsicum	2 "
Alcohol	14 pints.
Water	6 "

Macerate for eight days, then filter.

No. 1,183.—**Salicylate of Bismuth.**

We have given a formula for preparing this salt on page 280 of our September number; and a communication from one of our correspondents, regarding the formula, will be found on page 313 of the succeeding number. To complete the information, we append an outline of the process described by Jaillet:

Prepare crystallized nitrate of bismuth in the usual manner, and dissolve it in a moderate quantity of dilute nitric acid. Then add the solution gradually to five hundred times its volume of water, which has been rendered slightly alkaline and contains twice as much salicylate of sodium as there was nitrate of bismuth. Wash the precipitate three times, and dry at 40° C. The resulting salt is the acid salicylate $(Bi_2O_3)_3$ $(C_{14}H_6O_4)_5.16HO$ (old notation), being white, granular, or distinctly crystalline, and becoming colored when exposed to light. It is very little soluble in water, and ether, chloroform, or absolute alcohol extract from it only a trace of salicylic acid. If the washing of the above salt is continued until the wash-water no longer gives a violet reaction with ferric chloride, a basic salicylate of bismuth remains, which appears to be a mixture of two salts: $Bi_2O_3.C_{14}H_6O_4+2Bi_2O_3.C_{14}H_6O_4$ (old notation). It is an amorphous body of slightly yellowish color, and completely insoluble in water.

No. 1,189.—**Preparation of Vinegar** (F. D. C.).

Our correspondent lives in a remote part of the West, where, as he says, cider vinegar cannot be had, and, in fact, apples are five cents a piece. He states that good vinegar is hard to get and quite expensive. Even if he were to make it from acetic acid, this could not be had under 28 to 30 cents per pound. He desires to have a method indicated by which it may readily be prepared.

As it may be presumed that the ordinary methods for making vinegar would not suit the circumstances of our correspondent, we would recommend one of the following, which are likely to give satisfaction:

1. Prepare two barrels with false bottoms consisting of perforated diaphragms, upon which a layer of clean straw is laid. Upon this pile a quantity of clean and thoroughly washed shavings (as free from resinous or other taste as possible). Fix a spigot or plug near the bottom of each barrel.

Supposing the barrels to have a capacity of 40 gallons each, put in the first a liquid prepared by dissolving 12 lbs. of sugar in 28 gallons of water, and adding to it about one-half gallon of stale ale or beer. See that the temperature of the place in which the barrel stands is somewhere about 75° to 80° F. In the beginning, it may be a good deal higher, but when fermentation has fairly set in, it is necessary to avoid too much heat, as there would be too great a loss of alcohol. After a few days, slowly pour the contents of the first barrel into the second, and in a few days, back again into the first, until the fermentation to acetic acid is completed. This should be carefully watched. When the liquid is in proper condition, a little alcohol may be added to it for preservation. It is not necessary to use white sugar, brown sugar will do equally well, and, indeed, will yield a vinegar which has a more agreeable flavor.

We must confess that we have never tried this process ourselves, but have it from a private source in which we have much confidence. We would ask our correspondent to inform us as to its success or otherwise.

2. Although the cost of common acetic acid in the place where our correspondent resides is comparatively high, yet we cannot help believing that, after all, this forms the best and most economical source for good and pure vinegar. Good acetic acid, fully up to pharmacopœial strength, costs here about 12 cents per pound, bought in quantity. In one-pound bottles, price of bottle included, about 25 cents per pound. Glacial acetic acid costs about 75 cents per pound, bottle included; and at this rate, an acid of 99.5 per cent may be obtained in the market. If acetic acid is to be used by our correspondent for making vinegar, we advise him, by all means, to send for the glacial acid, as he will save being charged for the water contained in the other. There are various grades of glacial acetic acid in the market, some of them quite weak and inferior. Due care should therefore be exercised in specifying that it is required of full strength, at least not below 99 per cent. If larger quantities are ordered at a time, and in bulk, the price would, of course, be much lower.

Good strong vinegar may then be made as follows:

Glacial acetic acid	15 parts.
Water	235 "
Alcohol	1 part.

Mix.

Dr. Squibb recommends a mixture prepared on the above plan (diluted acetic acid, 256 parts; alcohol, 1 part, or about one-half fluid ounce to the gallon), as the best table vinegar that can be produced. He says: "If the mixture be set aside for a few weeks—the longer the better—enough acetic ether is generated to give it the full, clean aroma of fine vinegar, and then for table use it is very far superior to any vinegar made in the ordinary way by fermenting cider, and it is more wholesome, because free from the decomposition products of the fermentation of rotten or bad fruit, and free from the animalculæ and other impurities always present in vinegar by fermentation. It may be colored, if desirable, by a little caramel, but is much nicer when colorless. It is very cheap, costing not more than 18 or 20 cents per gallon [in New York]. The popular prejudice in favor of cider, malt, and wine vinegars, and against vinegar made from good acetic acid, is a mistake of ignorance which is not unimportant, because the latter is so much more cleanly and wholesome."

No. 1,190. **Infusion of Digitalis** (Subscriber).

The Pharmacopœia, indeed, orders the digitalis to be infused for two hours. Of course, this is not absolutely necessary, provided only the proper exhaustion of the drug is accomplished. So far as the digitalis itself is concerned, there is no need of infusing longer than about ten minutes, provided the water was boiling and the vessel is properly covered. And in the same period of time enough of the useful constituents of the cinnamon are extracted to serve the purpose. Therefore, if time presses, this infusion *may* be dispensed shortly after it is made. The official directions, however, ought to be observed whenever practicable.

No. 1,191.—**Deodorizing Bisulphide of Carbon** (H. H. L.).

Since your letter was received we have been in expectation of a communication from Europe, which was promised to contain a method for depriving disulphide or bisulphide of carbon of every trace of disagreeable odor, though, of course, it cannot be expected to be rendered odorless. The communication has come to hand, but the process therein given is both ineffectual and long known.

In addition to the methods heretofore given by us, we quote also the following, mentioned by Hager. To 1000 parts of the bisulphide, contained in a flask, add 50 parts of brass-filings and 20 parts of water. Then shake briskly and repeatedly during two days. Next add 10 parts of caustic lime, shake again repeatedly, let settle, filter through absorbent cotton in a covered funnel (away from lights or fire!!), and distil the filtrate at a temperature not exceeding 122° F. from a water-bath, taking care that the condenser is well-cooled. Steam should be used in this case, as the vapor of the liquid may be ignited by any naked flame used for heating the water-bath. The greatest caution is necessary while distilling the liquid.

No, 1,192.—**Aniseed Cordial** (Erie).

From a number of formulæ at our disposal, we select the following, which are highly recommended:

1. Oil of anise, Russian ..... 300 grains.
   Deodorized alcohol ..... 14 quarts.
   Syrup ..... 15 "
   Distilled water ..... 7½ "
2. Oil of anise, Russian ..... 150 grains.
   Oil of lemon ..... 60 "
   Oil of coriander ..... 30 "
   Deodorized alcohol ..... 13 quarts.
   Syrup ..... 15 "
   Distilled water ..... 7½ "
3. *Double Anise.*
   Oil of anise, Russian ..... 1½ fl. oz.
   Deodorized alcohol ..... 11 gallons.
   Syrup ..... 1¼ "
   Water ..... 14 "

No. 1,193.—**Ink for Marking Glass** (X.).

As a further reply to query 1,168 (see October number, p. 316), we will state that glass may be marked or etched permanently by using an ink prepared by mixing equal parts of sulphate of barium and fluoride of ammonium with enough hydrofluoric acid, in a platinum or lead vessel, to form a thin magma, and writing or marking with it upon the glass by means of a steel pen. After half an hour's time the etching is completed.

No. 1,194.—**Clemens' Solution of Bromide of Arsenic** (W. W.).

This was introduced a number of years ago by Dr. T. Clemens, of Frankfurt-on-the-Main, and has preserved some reputation as a remedy in certain chronic skin diseases, inveterate syphilis, and other affections. It is prepared thus (by weight):

Take of
   Arsenious acid ..... 1 part.
   Carbonate of potassium ..... 1 "
   Bromine ..... 2 "
   Distilled water, enough to make ..... 100 parts.

Heat the arsenious acid and carbonate of potassium with about 50 parts of water until solution is effected. Then add the bromine, and enough distilled water to make 100 parts.

Some authorities give a formula which makes the final product weigh 97 parts. But we believe that the above-mentioned formula is most generally followed.

As it is difficult to weigh bromine without injuring the scales or balances, it may be remembered that on an average 20 drops of bromine, dropped from the usual 1 oz. vials in which it is put up, weigh 1 gram.

Dr. T. Clemens published his paper on this remedy in the *Deutsche Klinik* (Berlin, 1859, xi., 95, 106. 117), under the title: "Das arsenigsaure Bromkali dargestellt und angewandt."

No. 1,195.—**Arnold's Writing Fluid** (M.).

It is not likely that the exact process of preparing this ink is known to any one except the manufacturer; nor can the latter be blamed for keeping his process to himself. And even if it had come to our knowledge in the course of our business experience, we would not be justifisd in publishing it broadcast, simply because it is the unquestioned property of some one else, who has the sole right to dispose of it, or to derive profit from it. This sentiment would, of course, not affect us in the least, if a question were raised about the composition of a proprietary *medicine*, particularly of an energetic character, or one to be taken internally, for in this case all secrecy is dangerous and immoral.

To come back to the query, we will say that we have published formulæ for inks, resembling the writing fluid in question, quite frequently.

No, 1,196.—**Biuret** (U. S.).

The biuret reaction, which was mentioned as a test for peptones in the paper on "Preparations of Pepsin," by Dr. Adolph Tsheppe (on p. 237 of our August number), is a peculiar color reaction peculiar to biuret, which may be regarded as the amide of allophanic acid, just as urea is the amide of carbamic acid:

$NH_2-CO-NH.CO.OH$ allophanic acid

$NH_2-CO-NH.CO.NH_2$ allophanamide, or *biuret.*

$NH_2-CO-OH$ carbamic acid

$NH_2-CO-NH_2$ carbamide, or *urea*

Biuret is formed in various ways: either by heating urea to 150°–170° C., or by passing cyanic acid into melted urea, etc., etc. It is best prepared by heating urea between 150° and 170° C. for some time, then allowing to cool, and extracting with water. The extracted substance which contains biuret and cyanic acid is freed from the latter by precipitating it with subacetate of lead; the filtrate is deprived of lead by hydrosulphuric acid, and evaporated. The biuret is repeatedly recrystalized from water, and finally from dilute ammonia. It forms long needles, soluble in about sixty-five parts of water at 15° C., and containing one molecule of water. From alcohol it crystallizes anhydrous.

Its characteristic reaction is the following: On adding to a solution containing biuret a few drops of solution of sulphate of copper, and afterwards an excess of caustic soda, a peculiar onion-red coloration appears, which becomes deep violet if much copper has been used. This reaction, however, is characteristic of all albuminoids; most of them show the reaction best after being heated to boiling with caustic soda, and the subsequent addition of a drop of a moderately concentrated solution of sulphate of copper; if then a little more sulphate of copper (even a trace of excess) be added, the color changes to a sort of blue, which is no longer characteristic.

Peptone (as well as "propeptone") is one of those albuminoids which furnishes the biuret reaction already in the cold.

According to Hofmeister, the biuret reaction is the best means of detecting peptone in the urine. If the latter contained 0.2 *gm.* or more of peptone per liter, the reaction is plainly recognizable. In presence of 0.1 *gm.* or less, per liter, it becomes faint and indistinct.

No. 1,197.—**To Make Plaster-Casts** (Meta).

To take a plaster-cast of the face of a living person, proceed as follows:

Let the person lie down on his back, an oil-cloth or other material being placed under the head to protect the bed or lounge. Anoint the face, which ought to be as smooth as possible, with almond or any other bland oil, and cover any hairy portions, such as eye-brows, moustache, or beard with hot flour paste, which should be allowed to become somewhat dry, though it is not necessary to wait long. The object is to preserve the contour or outline of the hair-tours, while, at the same time, preventing the plaster from getting into the hairs. Flexible collodion may also be used, either on the hairy portions alone or all over the face. A thick cloth is passed around the head, closely fitting to the latter, the object of which is to limit the extent of the cast, that is, to prevent the still moist plaster from flowing around to the back of the head. Everything being ready, two metallic or pasteboard tubes are inserted in the nostrils, to permit the person to breathe, and the previously prepared paste, made of the best dentists' plaster, is immediately poured on. It should set rapidly, and may be removed without trouble. From this form, properly oiled, and, if necessary, trimmed and improved by hand, casts of the face may be made by oiling and filling with plaster-paste.

The same method is followed in taking plaster-casts of other parts of the body, or of the whole body itself. In the latter case, it is necessary to subdivide the surface into such a number of parts that they may be easily handled. The pieces are taken one after another, so that the contiguous pieces which had been cast previously are applied to the body. In this way, the boundary of

the next pieces is exactly defined. It is also advisable to imbed stout strings lengthwise into each cast, so as to be able to lift it without getting hold of the edges. When putting it together for the purpose of making a cast of the whole body, the strings must be so situated and of such a length, that the parts can be well bound together. This is to be borne in mind while laying out the plan for making the cast.

No. 1,198.—**Herbarium Specimens** (Several Students).

There are several sources of supply for herbarium specimens, already dried and named. We can recommend, among others, Mr. A. Vigener, apothecary at Biebrich on the Rhine, who makes a specialty of this. The average price of specimens varies from twelve to twenty marks per hundred. This gentleman not only supplies phanogams, but also all kinds of cryptogams. He is also willing to exchange with botanists in this and other countries.

After a herbarium is once established—and there is no better and more profitable way than to build it up by personal collection in the field—it may be very profitably augmented—aside from the purchase of foreign herbaria—by entering into a regular exchange with other persons or associations interested in botany, and living in other countries. One of the most active and useful of these associations is the Silesian Botanical Exchange Club (*Schlesische Botanische Tausch-Verein*), the present manager of which is, we believe, Mr. Adolph Toepfer in Brandenburg, Prussia.

There are several gentlemen in the United States who are interested in the collection of plants for herbaria, whose addresses may be learned through Mr. Casino, 41——— st., Boston, Mass.

No. 1,199.—**Sozodont.**

According to the *Rundschau*, this is composed of the following ingredients:

Venetian soap	60 parts.
Glycerin	60 "
Alcohol	200 "
Water	120 "
Oil of peppermint	16 "
" anise	8 "
" cinnamon	4 "
" cloves	1 "

Formulæ and Information Wanted.—Correspondents ask for: 1. Formula or composition of Gombault's Balsam.

2. Robare's Aureoline.

3. What is the "Tincture Orgeat Compound?"

"Subscriber," whose letter was dated at Boston (but which was post-marked Providence, R. I.), and who asks for the ingredients of a proprietary medicine, is respectfully referred to the notice published at the head of this department.

Correction.—Mr. Richard Fingerhut writes us that he is not responsible for the advice to add glycerin to boracic acid to facilitate its reduction to a powder (see p. 280 of our September number). We were in error in connecting his name with the method.

Answers in Exchanges.

THE DRUGGIST.

Eno's Fruit Salt, a proprietary saline cathartic, is said to consist of two parts each of sulphate of magnesium, citrate of magnesium, bitartrate of potassium, bicarbonate of sodium, and tartaric acid, and four parts of sugar. After mixing, to be preserved in well-stoppered bottles.

To prevent the Luminosity of Mixtures, ointments, and liniments containing phosphorus, Stearns, of Detroit, recommends the addition of a little benzol, oil of turpentine, or oil of peppermint.

This would be very much like the plan suggested for curing a dog of barking—viz., *shoot the dog*.—ED. N. R.

Jane's Expectorant is said to consist of tartar emetic, 4 grains; spirit of camphor, 1 drachm; ipecac, 4 grains; tincture of opium, 2 drachms; tincture of lobelia, 1 drachm; syrup of tolu, 1½ ounce; tinture of digitalis, 1 drachm; syrup of squill, 2 ounces.

Potus (or Potio) **Rivieri,** a febrifuge, is said to have been originally a mixture of equal parts of lemon-juice and water and a sweetened solution of an alkaline carbonate, so adjusted that upon mixing equal volumes a neutral (effervescing) draught would result.

DRUGGISTS' CIRCULAR.

Guaiacum in Mixtures.—A Burlington, Vt., correspondent, having had trouble in dispensing the following, asks for information as to the best way to dispense it:

Gin	2 oz.
Gum guaiacum	2 dr.
Iodide of potassium	1 "
Nitrate of potassium	1½ "
Water, enough to make	6 oz.

The editor suggests three modes: 1. Reduce the guaiacum to powder and digest it with the gin in a close vessel, with gentle heat, for an hour or two, or until as much of the resin as possible is dissolved. Add this solution to the water in which the salts have been dissolved. 2. Dissolve the guaiacum in as small an amount of alcohol as possible (say twice its weight), and add the other ingredients slowly and with stirring. 3. Rub the guaiacum with an equal weight of gum Arabic, add 4 drachms of water, and then the other substances, the gin being last.

The first method has the disadvantage that the mixture may not contain all the guaiacum; the second that it introduces a foreign substance; and the third that the alcohol may precipitate the mucilage. Moreover, in the first two the guaiacum will in time be deposited on the sides of the vial.

Petroleum Hair Oil.—Expose "spindle oil" in open vessels for twelve hours to a heat of 220° to 225° F., and then filter through freshly-burnt bone-black. Then perfume, using the coarser and more pronounced flavors, like oil of mirbane, citronella, or verbena, with musk, clove, and cinnamon, in preference to the finer odors, which would be worthless.

"Race ginger" is said to be another name for *root* ginger.

Emulsion of Cod-Liver Oil with Tincture of Iron—an unsatisfactory preparation in any case—cannot be made with the aid of gum Arabic, because the latter is gellatinized by the iron, but tincture of soap-bark or mucilage of Irish moss may serve.

Cod-Liver Oil and Iron Jelly.—

Cod-liver oil	8 oz.
Gum Arabic	3 "
Simple syrup	1 "
Tincture of iron	1 "
Oil of bitter almond	4 drops.
Water	sufficient.

Place the gum and oil in a dry mortar and mix, and then add at once 5 oz. of water. Triturate briskly until the mixture thickens and acquires a milky whiteness. Scrape the portions adhering to the mortar and pestle, so as to render the whole homo, **en**eous and free from non-emulsified oil, then add the oil of bitter almonds, syrup, and enough more water to make 15 oz. Finally, add the tincture of iron, poured in a small stream, mix well, and transfer to a wide-mouthed bottle. Should strychnine be required as an ingredient, it can be dissolved in a little water with the aid of citric acid, and added at any period of the process.

Syrup of Senega.—A correspondent in South Boston remarks that in following the formula given in the U. S. Dispensatory for syrup of senega, he has been unable to dissolve 28 ounces of sugar (without heat) in 17 fluid ounces of a liquid which has but 12 fluid ounces of water at most.

Liquefied Carbolic Acid.—John H. Gilman, M.D., of Lowell, Mass., advises the addition of 1½ fluid oz. of 95% alcohol to each pound of carbolic acid (after liquefaction of the latter by heat) as a means for maintaining the acid in a fluid form. It has the additional advantage of forming a clear solution with oils.

Camphorated Chloral Hydrate.—F. W. C. suggests to those who have experienced the difficulty attendant upon an attempt to form a solution by rubbing camphor and chloral hydrate together, to make use of a little heat, when they will find that the two will unite without the need for trituration and without apparent decomposition.

Compound Powder of Senna.—(*London Pharm.*, 1824.)

Powdered senna	2 ounces.
Powdered cream of tartar	2 "
Powdered scammony	4 drachms.
Powdered ginger	2 "

Mix. Dose, 20 to 30 grains.

"Flavine" is the trade name for a secret preparation made from quercitron bark and used as a substitute for the bark in printing and dyeing yellow.

Ferro-Phosphated Elixir of Gentian.—

Extract of gentian	128 grains.
Warm water	1 oz.
Simple elixir	15 "
Pyrophosphate of iron	128 grains.

Dissolve the extract in one-half of the warm water, and the pyrophosphate in the other half. Mix the two solutions with the elixir and filter.

Mild Iron Tonic.—

Elixir of calisaya	8 oz.
Simple elixir	6 "
Warm water	1 "
Simple syrup	1 "
Pyrophosphate of iron	128 grains.

Dissolve the pyrophosphate in the warm water, mix all the ingredients together, and filter through paper.

The Freezing of Show Bottles may be prevented in most climates by a mixture of one part of alcohol, one part of glycerin, and two parts of water.

Salicylic Acid and Sulphate of Quinine.—H., M.D., complains of a drug clerk who averred that the following could not be put up dry, and if sent to a hundred druggists would be put up the same. The prescription called for

Sulphate of quinine,	
Salicylic acid, of each	℈ss.
Reduced iron	℈i.

M. To be made into 20 capsules. (*Put capsules up dry.*)

The capsules received contained a soft mass, and the trouble seems to have arisen from want of knowledge on the part of the drug clerk that when the first two are rubbed together a soft mass results. If the separate ingredients had been separately powdered and mixed without friction, no such trouble would have arisen.

BIBLIOGRAPHY.

A GUIDE TO AMERICAN MEDICAL STUDENTS IN EUROPE. By HENRY HUN, M.D., Lecturer on Diseases of the Nervous System in the Albany Medical College. New York: William Wood & Co., 1883; pp. 151, 8vo.

THIS excellent guide should be in the hands of every American student going abroad. It gives at the outset the general advice regarding routes, preparations for travel, the study of foreign languages, and arrangements for residence, which every student should know beforehand, and then the special characteristics of each school and private course are given at some length. When it is likely to be of service, schedules of hours of study are given, and in many ways the work supplies information that is necessary to make a foreign trip for study both profitable and agreeable.

Baillon, H. Traité de Botanique Médicale. 8vo, Paris. 1883. (With about 4,000 figures. In two parts. Price for both, 18 francs. Part I. is out; Part II. will shortly appear.)

Eichler, A. W. Syllabus der Vorlesungen über specielle und medicinisch-pharm. Botanik. Dritte Aufl., 8vo. Berlin. 1.70 m.

Electro-technische Bibliothek. A cyclopedia of electro-technic is announced by A. Hartleben, of Vienna, which is to be published in 16 volumes, the different subjects being assigned to competent specialists. Subscription price is 60 pfennige per number. To be published in about 60 numbers.

Fluegge, C. Fermente und Microparasiten. 8vo, Leipzig. 6 m.

Frank (Dr. A. B.). Grundzüge der Pflanzenphysiologie. 8vo, Hannover.

Heinzerling (Dr. Ch.) Die Fabrikation der Kautschuk- und Guttaperchawaaren. (With 104 illustrations.) 8voa, Braunschweig, 1883. [The most complete and thorough work on the subject.]

Herz (Joseph). Synopsis der pharmaceutischen Botanik. 8vo, Ellwangen.

Hoffmann, C. Botanischer Bilder-Atlas nach De Candolle's natürlichem Pflanzensystem. 4to, Stuttgart. (In numbers, each 1 m.)

Hoffmann (Carl). Botanischer Bilder-Atlas, nach De Candolle's natürlichem System. 85 fein colorirte Tafeln mit Text. 4to, Stuttgart.

Jandel (Aug.). La Botanique sans maître. 8vo, Paris, 1883.

Kayer (Dr. H.). Lehrbuch der Spectralanalyse, pp. 358, 87 illust., and 9 lith. plates. 8vo, Berlin.

Kayser (Dr. Heinrich). Lehrbuch der Spektralanalyse, 8vo, Berlin. 10 m.

Laborde (Dr. J. V.) et Duquesnel (H.). Des Aconits et de l'Aconitine. Histoire naturelle, Naturelle, Chimie et Pharmacologie, Physiologie et Toxicologie, Thérapeutique. 8vo, Paris, 1883. 15 fr.

Latschenberger (Dr. J.). Kurze Anleitung zur qualitativen chemischen Mineralanalyse. Für Mediciner. 8vo, Freiburg. m. 1 80.

Lehner (Sigmund). Die Kitte und Klebemittel. Zweite Aufl. Wien (Hartleben). m. 1.80.

Medicus (Dr. Ludwig). Kurze Anleitung zur Maassenanalyse. 8vo, Tübigen, 1883.

Peragallo, A L'Olivier, son histoire, sa culture, ses ennemies, ses maladies et ses amis. 2nde éd. 8vo. Nice. f. 5.50.

Schmidlin, E. Illustrirte populäre Botanik. Vierte Aufl. Von O. E. R. Zimmermann. 8vo, Leipzig. (In numbers, each 1 m.)

Schwackhoefer (F.). Technologie der Kohlehydrate. 8vo, Wien. m.9.60.

Stutzer (Dr.) Die Bestandtheile der wichtigsten Nahrungsmittel für Kranke und Kinder. 8vo, Bonn, 1883.

Wagner (Hermann). Gras-Herbarium. Fortgesetzt von Alb. Wagner. Lief. 1. Cyperaceæ. Vierte Aufl. (Aug. Helmich, in Bielefeld.) [The first number contains species of Cyperus, Schœnus, Scirpus, and Eriophoron.]

Pop Corn Candy.—Popcorn with all its associations of a good time, is once more in season, and children or young people who like to experiment with it can try the following recipe for crystallizing it: Put into an iron kettle one tablespoonful of butter, three tablespoonfuls of water and one cup of white sugar; boil until ready to candy, then throw in three quarts of nicely popped corn; stir vigorously until the sugar is evenly distributed over the corn; take the kettle from the fire and stir until it cools a little, and in this way you may have each kernel separate and all coated with the sugar. Of course it must have your undivided attention from the first to prevent scorching. Almonds, English walnuts, or in fact any nuts are delicious prepared in this way.

INDEX.

Corrections, 153, 258, 322, 373.

Abrus precatorius (*illustrated*), 163
or jequirity, further note on, 207
as a remedy for pannus, 89
Absorption apparatus (*illustr.*), 40
apparatus, Muencke's (*illustrated*), 142
by the skin, 51
of salts from the intestine, 48
Abstracts from fluid extracts, 157
Acacia angico, 6
mucilage of, 216
Acid, agaric, 358 [342
benzoic, decline in price of,
benzoic, use in perfumery, 146
boletic, 359
boric in eczema, 278 [20
boric, as a remedy for boils,
boric, powdering, 64, 280, 373
boric, in diphtheria, 60
boric, to improve the stability of asafœtida mixture, 26
carbolic, 72, and carbolates, 51
carbolic, cause of reddening, 366
carbolic, in antiseptic gauze, maximum limit of, 199
carbolic, liquefied, 374
carbolic, new reaction of, 53
carbolic, reddening of pure, 268, 366
carbolic, testing of crude, 22
carbonic, in atmosphere, 308
chrysophanic, 182
cinnamic and morphine, 156
citric, chemistry of, 47
citric contaminated with iron, purification of, 307
free, in presence of salts, detection of, 367
fumaric, 359
gallic, distinctive test for, 310
hydriodic, syrup of, 10
hydrobromic, preparation of, 202, 240
hydrochloric, yellow, 361
hydrocyanic, correction of pharmacopœial test for, 280
hydrocyanic dilute, pharmacopœial processes for, 60
hypophosphorous, 281, 370
lactic, method of separating and determining, 303
nitrohydrochloric, 123
phosphates, "Horsford's," 27
phosphoric, 174
phosphoric, commerce in, 344
phosphoric, note on the manufacture of, 165
picropodophyllinic, 132
prussic in cassava juice, 13
salicylic and sulphate of quinine, 374
Acid, salicylic, aqueous solution of, 53
salicylic in certain plants, supposed occurrence of, 36
salicylic, in milk and butter, determination of, 85
salicylic, dyspnœa due to, 197
santonic, 29
sclerotic, preparation of, 271
sulphuric, 175
sulphuric, experimental apparatus for making (*illustrated*), 13
sulphuric, in presence of alkaline chlorides, test for, 152
sulphuric, monohydrated, specific gravity of, 81
sulphuric, process for estimating, 81
sulphuric, specific gravity of commercial, 245
sulphurous, 60
sulphurous, alcoholic solution of, 52
sulphurous, impregnation of water with, 28
tartaric, 175
tartaric, chemistry of, 47
tartaric, in crude tartar, determination of, 242
tartaric, manufacture of, 107
uric, synthesis of, 83
Acids, organic, reagents for, 18
rules for dilution of, 1
Aconite, comparative strength of tinctures of, 266
mode of using, 87
poisoning, digitalis in, 106
Aconitine, 172, 342
arsenate of, 168
Duquesnel's, 165
Adhesive plaster, Martin's, 95
Adonidine, 168
Adonis vernalis, 172
Adulteration and substitution of drugs, 121, 332
Agar agar, 172
Agaricine, 168, 358
Agaric, white, as a remedy for sweating in phthisis, 42
Albumen, dialyzed, 303
in urine, tests for, 17, 237
on commercial, 112, 178
Alcohol, commercial amylic, organic bases in 301
dehydration of, 278
freezing of, 213
in casks, evaporation of, 27
inhalations in diphtheria 51
manometer, Perrier's (*illustrated*), 365
methylated, in liniments and tincture of iodine, 244
rules for dilution of, 1
Albumen, to deodorize, 215
"Alcoholene," 156
Alcoholic liquors, clarifying, 309
Alkaloids as picrates, determination of, 49
Almasca, 6
Almond paste, 54
syrup, preservation of, 158
soap cream, 54
Almonds, grubs in, 318
Aloes, Madagascar, 64
preparation of extracts of, 141
Althea, preservation of syrup, 158
Aluminium, cheapened, 86
coated iron, 312
oleate, 19
sulphate, 305
sulphate free from iron preparation of, 171
Amandine, 54
Ambergris, use in perfumery, 145
Amcher, 7
Ammonia, test for gaseous, 98
water, colored, 213
water, manufacture of (*illustrated*), 15
water, pyridine in commercial, 165
Ammonium chloride in headache, 88
chloride, 87
elixir of valeriante, 338
iodide, liniment of, 349
salts, action of, 43
sulphate, 172
sulphocyanide of, 249
Amyl nitrite in glottic spasm, 88
Anæsthetizing apparatus, two new, (*illustrated*), 205
Andromeda Japonica, constituents of, 66, 229
Andromedorubine, 66
Andromedotoxine 66
Andrometoxin, 67
Angostura bitters, 199
Anilin colors, tests for, 284
Animal skins, ointment for preparing, 248
Antipyretics, 169
Antiseptics, new, 169
Anti-Spree Mixture, 277
Apocynin, 235
Apocynum cannabinum, active principles of the root of, 235
Apomorphine, solution of, 318
Apothecaries' Society of N. Y. German Pharmacists, 96
Arbutin, 66
Arnica salve, 351
Arsenic and its combinations, historical notes on, 98, 130, 170
bromide, solutions of, 85, 372
in chorea, 52 [364
in glass as a source of error,
in headache, 88

Arsenic, oleate, 19
tribromide of, 209
Arsenite of potassium, use of, 87
Asafœtida, 342
mixture, boric acid in, 26
Asaron, 172
Asebofuscin, 229
Asebogenin, 66
Asebopurpurin, 229
Asebotin, 66
Asebotoxin, 66, 229
Asebo-quercetin, 229
Asparagin, separation of, 53
Aspidospermine, 172 ; use of, 77
Aspirator, Lawlor's (*illustrated*), 273
Assay, stathmetic method of, 336
stathmometric methods of, 335
Atomizing liquids for sick-room, 278
Atropine 172, 342
artificial, 171
in earache, 139
morphine, etc., how to keep solutions of, 211
sulphate, mode of using, 87
Automatic heat-regulator (*illus.*), 69
Avena sativa, tincture of, 59
AVERBECK, M. J , on pill-making in pharmacies, 103
Ayer's Hair Vigor, 59

BABCOCK, PROF. J. F., historical notes on arsenic and its preparations, 98, 131, 170
J. F., historical notes on bromine, 290
Baking powder, 55, 222
Balances, improvement in (*illustrated*), 358
Balata-gum, 130.
Balsam, Canada, 172
Minyak-lagam, 268
Peru, 172, 342
Peru, substitute for, 119
Tolu, 342
Bandoline, various kinds, 54
Barium iodide, 20
iodide, external use of, 100
sulphate, precipitation of, 84
testing for, 81
"Barometer, Oriental," 214
Baumé's scale and French codex, 204
Bay-rum, 54
"Beer seed," 284
Beeswax in pills, 350
BEDFORD, PROF. P. W., on fluid extract of senega, 196
P. W., on poison sales and poison law, 106
Belladonna in constipation, 185
leaves, 342
mode of using, 87
Benzin, 156
precautions in using, 284
purification of, 147
Benzoin as a preservative of ointments, 95
Benzo-phenid, 342
Berberidaceæ, 211
Bergamot, production and commerce of, 144
BIBLIOGRAPHY, 61, 93, 122, 179, 193, 218, 252, 285, 318, 374
Bismuth, Australian deposit of, 128
salicylate of, 280 313, 371
subcarbonate in headache, 88
Bismuth, subnitrate, 342
subnitrate as a remedy for gangrene of the cheek, 89
Bitters, Angostura, 199
in quantities, to make, 216
Biuret, 372
Boils, boric acid as a remedy for, 20
Bone, permanent whitening of, 317
Borax, 342
glycerin and bicarbonates in combination, 284
in diphtheria, 60
Boroglyceride, 28, 250
Bottles, black laquer for coating, 300
glass, color of, 69
Boletus laricis, nature of precipitate in tincture, 358
Bougies, gelatin, 89
medicated, 277
Bouquet essence, 146
BOYD, DR. A. M., on zapoto, or balata-gum, 130
Blackberry cordial, 247
Blackboard paint, 156
Blanc grass or Rachel white, 216
Blaud's pills, 118
Blue-print solution, 153
Brandreth's pills, 350
Brandy, falsification of, 118
"Brassicon," 11
Brazilian army medical supplies, 368
drugs, notes on, 6
Brilliantine, 54
"Bromidia," 7
Bromide of ethyl as a remedy for spasmodic cough, 53
Bromides in headache, 88
Bromine, apparatus for the manufacture of (*illustrated*), 108
as a disinfectant (*illustrated*), 297, 369
historical notes on, 290
increased foreign production of, 342
in the United States, production of, 296
Brosimum galactodendron, 119
Brown's Bronchial Troches, 95, 247
Brown Mixture, 211
BRUCE, DANIEL, JR., on the treatment of burns, 314
Bully-tree gum, 130
BUNSEN, Dr., election to Paris Acad. of Sci., 96
Bureau of professional inquiry, 224
Burette, Abraham's (*illustrated*), 113
Burner, long flame Bunsen, Ramsay's (*illustrated*), 300
Burn-mixture, glue, 270
Burns, treatment of, 314
Butter coloring, 211
preservation of, 330
Butternut bark, a new feature of,
Butyl chloral, 156 [127

Cachou aromatisé, 54
Cacodyle, 3
Caffeine citrate in headache, 88
sodio-benzoate of, 168
sodio-cinnamate of, 168
sodio-salicylate of, 168
soluble salts of, 53
Cafta, 242
Calabar bean, mode of using, 87
Calcium and sodium, boroglyceride of, 169
iodide, 281
Calcium chloride as a desiccator of gases, disadvantages of, 22
sulphide, 154
syrup of lacto-phosphate, 58
Calisaya alkaloids, elixir of, 347
Calomel, mode of using, 87
with potassic iodide, 155
Calx sulphurata, 154
Camphor, 172
diminished supply of, 342
enema, 195
exportation of Chinese, 70
powdering, 124
refining of, 175
Camphorated chloral hydrate, 374
Cannabine, tannate of, 40, 342
Cantharidates, 7
Cantharides, 342
mode of using, 87
Cantharidin, 7; and its uses, 248
Capsule-folding-machine (*illustrated*),
Capsules, asbestos, 77 [165
Carbolates, uses of, 51
Carbonated beverages, copper fountains for, 313
Carbon bisulphide, deodorizing, 371
disulphide, ammonial copper test for, 212
disulphide, towards permanganate of potassium, behavior of, 21
disulphide, purification of commercial, 21
Carboy, history of the, 368
Cardio-vascular drugs and poisons, 120
Carduus marianus in hæmoptysis, 19
Carthamin, 273
Cassava juice, prussic acid in, 13
Cassia, exportation of Chinese, 70
Castella Nicholsoni, its characteristics and proximate analysis, 102
Cataplasm, "Kern's," 50
Catarrh Remedy, Dr. Sage's, 213
treatment of, 272
CAZENEUVE, PAUL. 64
Cellulose as a dressing, 270
Cement, acid-proof, 25, 60
for alabaster, 156
for aquaria, 184
for glass, 24
for leather, 154
for metallic letters upon glass, 213
Cerates, petrolatum in officinal, 297
Chamomile flowers, 172
in diarrhœa of infants, 88
mode of using, 87
Chemicals, new, 168
Chicle gum, 130
Chilblain, treatment of, 10, 55
Chinese export drugs, 70
Chinoline, 172
tartrate, erroneous employment of, 342 [188
Chloral and camphor, glycerole of,
hydrate as a purgative, 120
hydrate, camphorated, 374
new use of 246
Chlorine in oxygen prepared from chlorate of potassium 53
Chloroform water. 56
Cholera remedies, 283
Chorea, large doses of arsenic in, 52
Chrome salts, disease of the nose among workers in, 20
water, 367

Cinchona, 172
a diminutive, 288
alkaloids, determination of, 274
alkaloids for elixirs, preparation of, 309
alkaloids, tartaric acid as an excipient for, 285
barks, mode of handling in Java, 346 [342
commercial changes of, correction of German process for assaying, 274.
cuprea (*illustrated*), 53
in Guatemala, 367
Ledgeriana, to obtain seeds of, 362
Cinchonamine, 36
Cinchonidine, benzoate of, 304
hydrochlorate, fraudulent use of, 343
sulphate, 343
Cinnamon, Ceylon, 172; (*illustrated*), 324
prices, 343
Circassian pomade, 222
Citrate of magnesia, 246
Civet-fat, 153
Clay, purification of, for pills, 216
CLOVER, Dr. Joseph T., death of, 31
Cloves, commerce in, 343
use in perfumery, 144
Coating for flasks and retorts, 236
Cocaine, hydrochlorate of, 169
Coca leaves, 173; scarcity of, 343
Cochineal, adulteration of, 10
Codeine, 173
phosphate of, 169
Coffee in Europe, consumption, 288
syrup of, 318
Cokobola, 360
Cold cream, 272
cream, a French observation on, 243
cream and yellow oxide of mercury, 262
cream, to preserve, 95
Colic, quinine as a remedy for, 51
COLLEGES OF PHARMACY, Albany, 96, 319; in Kentucky, a female, 96; Massachusetts, 223; N. Y., 63, 96, 126; St. Louis, 190; Wisconsin University, 256
Collodion, camphorated, 315
cantharidal, 248
salicylated Indian hemp,
Cologne water, 54, 246 [124
yellow, 250
Color for show bottles, 277
Coloring matter for wines and liquors, 148
Colors in windows, to preserve, 285
Coltsfoot syrup, 214
Comedones, pomade for, 20
Commercial travellers in U. S., 31
Committee on Entertainment, 322
Condition powders, 185
Condurango, 173
bark, commerce in, 343
Conium substitutes, 329
Convallaria flowers, decline in demand for, 343
Majalis, 317
Majalis, indications for the use of, 89, 142
Convallarin, 121
Convallamarin, 121
Copaiba balsam, mode of using, 87
balsam, tests of, 136, 278
commerce in, 343
Copper fountains, 313
in pickles, 305
oleate, 19
Copies of drawings, positive, 175
Cordial, aniseed, 372
Cork, artificial, 360
bark in Spain, 20
Corkscrew, a new (*illustrated*), 135
Corn-silk, preparations of, 175
Corn, wart, and bunion cure, 318
Corrosive sublimate in glycerin for parasites of the skin, 202
sublimate, mode of using,
Cosmetic grease, 347 [87
Hungarian, 367
preparations, 54
Coto bark, increased demand for, 343
COTTELL, Dr. H. A., 260
Cotton, absorbent, 250
Cough mixture, Pancoast's, 92
bromide of ethyl for, 53
Court-plaster without silk, impermeable, 25
Cow-tree, the, 119
Crayon feu, 89
Creme de Mauve, 54
Creosote wine, 278
Croton chloral, 156
chloral, mode of using, 87
Crucibles, nickel, 367
Crystals, apparatus for producing small (*illustrated*), 264
from evaporating pans, apparatus for removal of (*illustrated*), 119
Cubebs, syrup of, 216, 285
Cucumber pomade or cream, 222
Cumarin, artificial, 234
Cuprea bark (*illustrated*), 35
bark, new, 171
Currants, culture of, 317
CURRIER, CHARLES O., extraction apparatus (*illustrated*), 130
CURTMAN, CHARLES O., on tests for sulphides and ammonia, 205
Cystitis, resorcin as a remedy for, 51

Daffodil, production of, 145
Decimal dozen, a, 290
Decipium, 304
Demijohn, history of the, 368
Depilatory, 317
Detergent, universal, 213
Dialysis, 2, (*illustrated*) 67
conducted with chloroform water, and on dialyzed albumen, 203
Diarrhœa, chamomile in, 88
Diastase, 214
Dimethylacetate as an anæsthetic, 51
Diffusion apparatus, Largilliere's (*illustrated*), 7
Digestion bottles (*illustrated*), 68
effects of iron on, 88
Digitaline, 60, 173
and its congeners, 115
on heart, action of, 106
Digitalis in aconite poisoning, 106
infusion of, 371
mode of using, 87
Dimethylacetate as an anæsthetic, 51
Diphtheria, borax or boric acid in, 60
Dispensatory, errors in the U. S., 186, 285
Displacement, sectional, 333
Distillation, apparatus to prevent foaming during (*illustrated*), 42
Distillations at one time, Landmann's apparatus for (*illustrated*), 296
Distilling apparatus, Egrot's (*illustrated*), 105
Diuretic tea, 278
Dogs, to prevent nuisances from, 284
DOLIBER, GOODALE & Co., 287
Dose, influence of, 39
measurements in France, 224
DOVER, DOCTOR, 224
Dover's powder, camphorated, 282
Druggists' Association, National Retail, 310 [167
in Washington, arrest of,
Drugs and chemicals, Gehe's semi-annual reports on, 172, 342.
export, of China, 70
spurious in England, 64
unusual sales of, 191
Drug-store, illustrations of a New York, 256
Drying ovens, improvement in (*illustrated*), 244
ovens, Seelig's (*illustr.*), 117
DUMAS, presentation to, 64
DYMMOCK, SURGEON-MAJOR, on oil of pongamia glabra in pityriasis, 68
Dynamite, 184 [312
petrolatum mistaken for,
Dyspnœa due to salicylic acid, 197

"Eau d'Ange," 250
de Brettfeld," 54
dentrifice" (Pierre's), 246
Eggs, preservation of, 185
Elaterine, 28
trituration of, 28
"Clutterbuck's," 28
Elixir of Calisaya alkaloid, 347
valerianate of ammonium, 338
Elixirs, preparation of cinchona alkaloids for, 309
Embalming fluid, 369
"Emerald-Green," 148
Encaustic letters, removal of, 275
Eno's fruit salt, 373
Ergot, ammoniacal extract of, 78
chemical character of violet color in, 365
deprived of fat, 271
in delirium tremens, 46
mode of using, 87
Ergotinine, Tanret's, 173; dose of, 343
preparation, a new, 171
Eriodictyon glutinosum as a disguise for quinine, 20
Eserine, dispensing, 351
Essence manufacture of Messina, 158
Ethereal tinctures by percolation, simple apparatus for making, 210
Ether apparatus, West-Knight's (*illustrated*), 267
from "rectified" and methylated spirit, comparative value of, 12
on the kidney, effect of inhalation of, 89
petroleum, 156
products of slow combustion of, 299
Eucalyptus, commercial products, 90
Euonymin and its preparation, 294
Euphorbium, 173
Evaporating apparatus (*illustr.*), 118

Evaporation, apparatus for hastening (*illustrated*), 169
Perré fils and Quidet's apparatus for rapid (*illustrated*), 304
Exhibition at Amsterdam, 256; Berlin, hygienic, 256; Calcutta, 160; international, 127; Nice, 287; Vienna, 31, 256
Extraction apparatus (*illustrated*), 38, 130, 170
apparatus, Dunstan & Short's (*illustrated*), 133
apparatus, Soxhlet's (*illustrated*), 356
apparatus, Weglin & Hubner's (*illustrated*), 137
Extracts, notes on the preservation of, 134
EYKMAN, J. F., on the constituents of Andromeda japonica, 66, 229

Faith-cure, 160
Fat-extracting apparatus (*illustrated*), 72
Fat in mixtures of fatty acids, estimation of neutral, 83
stains from paper, 178
Fats and oils, green color for, 197
apparatus for estimating (*illustrated*), 74
apparatus for melting (*illustrated*), 303
chemical examination of, 303
Feeding-cup, a new (*illustrated*), 177
Fehling's solution, 157
solution, unalterable, 278
test, Wyeth's tablets for, [322
Fig-tree, the, 114
Filter for syrups (*illustrated*), 50
how to make a, 215
Filtering apparatus (*illustrated*), 49
apparatus, Burton's (*illustrated*), 233
of syrups, etc., apparatus for the rapid, 200
paper, chemically pure, 167
Filters, asbestos, 45
to prevent rupture of, 285
Filter-press, Landry's (*illustr.*), 16
Filtration, some facts concerning (*illustrated*), 230
Flour, detection of ergot in, 365
Foods, analysis of, 85
Fothergill's cough mixture, 127, 160
Fosgate's cordial, 314
Flies, to prevent, 284
Fluid extracts, precipitates in, 294, 323
Fractional distillation, apparatus for (*illustrated*), 276
Frangipanni essence, 146
Freckles, removal of, 277
Frost-bite formulas, 193
Fruit-coloring, 318
Fruit-juices, to preserve, 284 [81
Fuchsine in red-wine, detection of,
Fume closets, door fasteners for (*illustrated*), 143
Fungin, 360
Furs, preservation of, 366

Galls, exportation of Chinese, 70
Gamboge, Ceylon, 307
Gangrene of the cheek, subnitrate of bismuth for, 89
Gas-burner, giving heat and light, Jacob's (*illustrated*), 179
Gases, apparatus for inhalation of (*illustrated*), 305
in carbonated liquids, tests for (*illustrated*), 110
Gaskets, or washers, for stills, 333
Gas stoves, improved (*illustr.*), 362
supply, regulator for (*illustr.*), 47
tubing, rubber, to render odorless, 362
GEHE, MR., bequests by the late, 96
Gelatin bandage, medicated, 167, 269, 281
bandage, the, 364
sheets, process of manufacturing, 215
Tjen Tjan, 172
Gelsemine and its salts, 109
Gelsemium as remedy in tetanus, 89
mode of using, 88
Gentian, 173
ferro-phosphated elixir, 374
Germicidal strengths, table of, 339
Ghe che, 191
GIBBS, B. F., interment of, 128
Ginger ale (*illustrated*), 217
beer, preserving, 123, 153
decolorizing tincture, 185
essence of green, 240
soluble extract of, 248
Glacialine, 25
Glass, a new variety of, 69
cleansing materials for, 293
labels, to reattach, 318
shades, to make holes in (*illustrated*), 119
vessels, cleansing, 244
Glottic spasm, nitrite of amyl in, 88
Glucose, glycerin in, 31
or grape sugar, 210
picric acid test for, 275
Glue, liquid, 184
Glycelæum, 176
Glycerin, adulteration of, 30, 53
analysis of aqueous, 275
and castor oil, 345
and glue, 56
and its applications to pharmacy, 176
and water, contraction of volume on mixing, 317
preservative of honey, 297
salves, 188
Glycyrrhizin, ammoniacal, 212
Goa powder, scarcity of, 343
Gold, new reactions for salts of, 305
Goods, marking, 116
Graduates, correctness of, 199
Grease proofing of wood, 157
Green color for canned vegetables, 115
color for fats and oils, 197
Green's August Flowers, 211, 313
Grubs in almonds, 313
Guachamaca, 100
Guaiacum in mixtures, 373
mixture, 216
Guarana, mode of using, 88
"Storm's" elixir of, 29
Guassatunga, 6
Gum acaroides, 29
Arabic, 173
Arabic and bicarbonates, 183
Arabic in certain chemical reactions, influence of, 12
balata, bully-tree, chicle, or zapoto, 130
resins, caustic lime a solvent for, 200
Gums in Australia and New Zealand, collection of, 135
Gutta percha, substitute for, 177

Hair-oil, cocoanut, 215
macassar, 248
petroleum, 373
Hair, to prevent falling of the, 216
Hager's Pharmaceutische Praxis, 124
Hamamelis, mode of using, 87
HANBURY, DANIEL, "In memoriam," 190
Hance Bros. & White, destruction of laboratory, 287
HARDY, G., on a decimal dozen, 290
Headache remedies, 88
Heat regulator, automatic (*illustrated*), 206
Hectograph ink and pads, 200, 316
Heliotrope, substitute for, 144
extract, 25
Heliotropin, 27
Hemlock-bark extract, 117
Herapathite, 348
Herbarium specimens, 373
Herbs, fresh, tinctures of, 201
HIGLEY, W. K., microscopical examination of the leaves of Liatris odoratissima (*illustrated*), 260
HIRSCHSOHN, EDW., on chloride of zinc tow, 99
HOLMES, CLAY W., on fluid extract of senega, 195
"Homeriana," source of, 343
Homœopathy in Berlin, 158
Homoquinidine as a contaminant of quinidine sulphate, 84
Honey, glycerin as a preservative of, 297
Hop cordial, 247
Hops, fraudulent, 64
"Hostetter's Bitters," 313
Hot-air bath in laboratories (*illustrated*), 235
chamber, new, pharmaceutical (*illustrated*), 202
Hot water in headache, 88
HUESTED, Dr. A. B., on tincture of opium, 195
Hydnocarpus oil as a substitute for chaulmoogra oil, 200
Hydrogen peroxide, action upon the organism, 279
peroxide in chemical analysis, 308
Hyoscyamine, therapeutic value of, 52, 120
Hypodermic solutions, preparation of, 277
Hopophosphites, glycerole of, 350
of iron, soda, lime, and magnesia, compound solution of, 166
syrup of, 317

Ichthyol, 73
in the treatment of rheumatism, 116
nature and source, 197
Icica heptaphylla, 6
Incompatibles, 212 [124
Indian hemp collodion, salicylated, hemp in headache, 88
India-rubber goods, to preserve, 25
in the Beni River region, 14

Infant food, a good. 146
Inhaler. a new (*illustrated*), 206
Ink, black, 27, 186, 215
blue, 184, 186
copying, 250.
for writing on glass, 316, 372
for rubber stamps, 79, 181, 215
hectograph. 316
indelible marking, 249
indelible, without silver, 247
invisible, a new, 55
marking, 181
old manuscript, 304
plant, 302
show-card, 94
to restore faded, 24
Insecticide for plants, 246
Insect powder, 174; colored, 206
powder, commerce in, 343
"Iodia," 7
Iodide of potassium, purity of, 326
Iodine, 174
albuminated, 169
tests of, 110
tincture of. 103
tincture, common salt in. 366
use of methylated alcohol in tincture, 244
Iodoform, carbolized, 92
deodorization of, 73, 88, 169, 181, 278
hint about the use of, 127
hypodermic use of. 275
in purulent ophthalmia. 85
suppositories. 366
to remove odor from mortars, 350
"Iodo-phenique," 13
Ipecac, an improved syrup of, 136
compound syrup of, 136
mode of using, 87
Iris versicolor, 59
versicolor in headache, 83
Iron and conium mixture, 185
and quinine, solution of citrate of. 58
aluminium coated 312
Bestucheff's tincture, 247
dialyzed, use of. 52
oleate, 19
on digestion, effects of, 88
peptonate, 343
purification of citric acid contaminated with, 307
pyrophosphate with phosphoric acid in prescriptions, 351
rust, removal of stains of. 275
solutions for volumetric estimation of, 132
solution of chloride of, 247
subsulphate, composition and molecular weight of, 306
sulphate. new property of, 358
sulphate, ointment of, 349
sulphate, preservation of, 56
sulphate, water of crystallization in, 377
syrup of iodide, 248 [138
syrup of iodide, preservation of.
syrup of phosphate, new modes of preparing, 44. 57
tincture and solution of chloride, 272
tincture of hydrochlorate, blackening of. 350
tincture of citro-chloride of, 104
tonic, mild, 374
Iron, white phosphate of, 185
Itch, naphthol in, 94
Ivory, potato, 76
to permanently whiten, 317

Jaborandi leaves, 174
mode of using, 87
Jamaica dogwood, 183
Jalap, the testing of, 116
Jalaps, researches upon the, 14
Jane's expectorant, 373
Japanese drug-tax, 41
Jasmin oil, production of, 144
Jequirity seeds, demand for, 343
Jewish pharmacists in Russia, 192
Jockey Club essence, 146
"Judkin's Ointment," 157
Jujubes, glycerin 177

Kairine, 41. 118, 174, 236, 242, 267
demand for, 343
hydrochlorate of, 41
Kairoline, 41
Kaiserquelle, analysis of the. 213
Kamala, 174
Karanja. 68
KEASBEY and MATTISON, theft of quinine from, 287
Kefir, 155, 315
Keroseline, 156
Kerosene, 156
Khat, 242
Knife for cutting troches, etc. (*illustrated*), 175
KOBELL, FRANZ VON, death of, 32
Kumys, 183
peptonization of albuminoids in, 20

Label-holder, 201
varnish 301
Labels on metal, or glass, attaching, 246, 275
Lactosum Elaterii, 28
Lacquer for coating bottles, 300
polychrom, for tin, 246
Lager beer, 369
"Lait de Rose," 54
Lard, benzoinated, 155
Laricin, 358
Laudanum generally dispensed New York, composition, 194
Laurus californica, 50
Lavender, cultivation of. 144
"Laville's Rheumatic Mixture," 247
Laxative syrup, Amussat's, 209
Lead acetate, peculiar reaction of, 84
yellow oxide of, 280
Leather, restoring the finish of, 308
Leeches, to keep, 361
Legen, 243
Lemon, essence of, coloring. 216
oil production and use, 145
Letter-copying. improvements in, 79
Liatris odoratissima, microscopical examination of (*illustrated*, 260
"Licorice bean" as a remedy for pannus, 89
testing extract of. 139
Liebig's condenser, modified (*illustrated*). 239, 241
Light petroleum, 156
Ligrosine, 90
"Lily of the Valley" as a remedy, 89
of the Valley flowers, 174
of the Valley," production of, 145
Lime and iron, syrup of phosphate of, 274
caustic, a solvent for gum-resins, 209
hyposulphite, to dissolve, 349
juice and glycerin, 176
Liniments with cotton-seed oil, 57
methylated alcohol in, 244
Linseed meal poultices. 18, 88
Lint, Seabury and Johnson's. 190
"Liquor Bismuth and Hydrastia," 56, 60, 92
Liqueurs, crystallized, 252
Liquor cocci, 216
Liquidambar, 76
Liquid measure Monroy's (*illus.*), 168
Liquids, clarifying (*illustr.*), 269
Liquor potassii citratis, 211
Lithium iodide, 20
Litmus paper, 182
Liverwort herb, 174
LLOYD. PROF. J. U.. 224
Lozenge cutter (*illustrated*). 132
Lumbago, quick relief of, 210
Lupulin, 174
Lycoperdon giganteum, 133

Maceration and displacement in vacuo 181
"Macassar hair-oil," 248
Magnesia from lime, ferric oxide, and the alkalies, separation of, 171
sulphate in headache, 88
Malarial fever, bromhydrate of quinine as a cure for, 119
"Malaria," remedies for, 29
sulphur in, 52
Malt and iron, elixir, 249
extract of, 301
Maple-sugar industry, 239
spurious, 239
Marshmallow ointment, 349
Matches, on paint, to prevent scratching, 284
MCINTYRE, B. F., on dialysis, 2
MCMURTY, Dr. L. S., 260
Meat extract, Kæmmerich's, 56
preparation of powdered, 248
Medical Act in New York, enforcement of the, 64
Megilp, 300
Melastoma Ackermani, 258
Metallodium, 280 [146
Methyl chloride, use in perfumery,
Methylene bichloride, 181
spurious bichloride of, 43
Mercurial poisoning, new source of,
Mercury, formamidate, 343 [60
formamide of, 75 281
joint Karsten's (*illus.*), 263
joint, as a substitute for India-rubber tube, (*illustrated*), 72
peptonate of. 343 [87
with chalk, mode of using,
yellow oxide of, and cold cream, 262
Microchemical reaction methods, 204
Mignonette, growth of, 145
Milk analysis (*illustrated*). 208
influence of drugs upon the secretion of, 304
sugar as a laxative, 288
Millefleurs essence, 146 [101
Mimosa pudica, action of drugs on,
Mirrors, to silver, 183

Mixing and sifting machine (*illustrated*), 41
Morphine and cinnamic acid, 156
sulphate, solubility, 17, 197
Moxa, a new, 89
Mullein in consumption, 119
Mushrooms, poisonous principle of edible, 266
to preserve, 366
Musk, 279
American, 73
deodorization of, 73, 169
exportation of Chinese, 70
high price for, 343
use in perfumery, 145 [100
Mustard and molasses, cataplasm of, table, 341
Myrrh and capsicum, tincture of, 349

Nactamala, 68
Names, misuse of, 128
Naphtha, petroleum, 156
Naphthalin, 280
as an antiseptic, 44, 362
cotton, 278
Naphthol as an antiseptic and disinfectant, 291
composition of, 91
in itch, 94
testing urine for, 292
therapeutic uses of, 292
Narcine, reaction of, 82
National Museum, 127
Museum, materia medica exhibit at the, 321
Nerve-stretching, early mention of,
Nevrin, 266 [127
Nice, International Exhibition in, 287
Nickel-plating, 316
Nigrosine, 181
Nitrogen, liquefaction of, 236
Nitroglycerin, 184 [310
physical characters of, tablets of, 169
Nitrous ether, composition of spirit of, 259
ether, preparation of spirit of, 140
Nomenclature gone mad, 161
Nucta, 212
Nux vomica, assaying, 124 [117
complete exhaustion of, in headache, 88
mode of using, 87

Oakum, antiseptic properties of, 90
Odontine, 248
Odors from bottles, jars, etc., to remove, 60
Oil, beech-nut, 243
birch, 272
birch, as a commercial substitute for oil of wintergreen, 340
Canada fleabane, 57
cantharidal, 248
castor, 172
castor and glycerin, 345
castor, emulsion, 216
castor, mode of using, 87
castor, syrup of, 200, 278
chlorinated, in scabies, 39
cod-liver, administration of, 278
cod-liver, and tincture of iron, emulsion and jelly, 373
cotton-seed, detection of, 57
cotton-seed, in linseed oil, 217
cotton-seed, pharmaceutical uses of, 57
Oil, cotton-seed, saponification of, 59
erechthites, 57
erigeron, 57
eucalyptus, 174
fireweed, 57
fish, process for extracting, 48
gaultheria, 272
hydnocarpus, as a substitute for chaulmooga oil, 200
linseed, adulterated, 79
marjoram, 57
mustard (fixed), 174
olive, test for purity of, 314
orange, solubility of, 350
pine, 186
rose, testing, 210
peppermint, in headache, 88
sassafras, production in Virginia, 224
wintergreen, oil of birch as a commercial substitute for, 340
ylang ylang, 174
Oils, essential, commerce in 344
essential, properties of some, 57
ethereal, purification of, 197
fixed, test for purity of, 367
Oiled paper, Seabury & Johnson's,
Ointment, a troublesome, 133 [190
cantharidal, 248
improvement in, 283
mercurial, 26
petroleum, decolorizing, poplar, 92 [27
Ointments, petrolatum in officinal,
Oleates, 19, 283 [297
"Oleolisse Tonique," 54
Oleo-palmitates, 19
"Olivine," 54
Omphalea oleifera, 3
Ophthalmia, iodoform in, 85
Opium, 174
commerce in, 344
cultivation in the Zambezi district, 15
deodorized tincture of, 113
in Roumelia, 240
in San Francisco, 287
tincture, 155
tincture of, why to be made according to the Pharmacopœia, 195
Orange cultivation in Florida, 16
growing and its profits, 363
oil, production and use, 145
tree scales, 75
Orris, use in perfumery, 146
OTGEN, G. A., on compound syrup of wild cherry, 313
Oxygen, presence of chlorine in, 53
Oxy-quinolin-methyl-hydrate, 41
Ozokerite industry in the East, 356

Pain-killers, 277
Paint for blackboards, 156
to clean, 89
Palo de Vaca, 119
Pannus, licorice-bean a remedy for, 89
Panclastite, 288
Papayotine, 174
demand for, 344
Paper, removal of fat-stains, 178
Paraffin, test for, 83
hard, 370
Paraffins, method of preparing, 293
Paraldehyde, 120, 169
commerce in, 344
effects of, 361
Parched corn as a remedy for vomiting in pregnancy, 104
Parsley mixture, compound, 283
PARSONS, HENRY B., on composition of spirit of nitrous ether, 259
HENRY B., on the composition of the laudanum dispensed in the State of New York, 194
HENRY B., on the separation of quinine from coated pills, 67
Partridge-berry, compound elixir of, 283
Paste for labels, 18, 95
liquid, 282
Pastilles, disinfecting, 140
fumigating, 282
glycerin, 177
Patchouli essence, 146
use in perfumery, 145
Patent medicines in Holland, 63
medicines in Italy, 158, 162
PATENTS, 30, 63, 74, 125, 186, 253, 287, 319, 351
Pen-wiper, 160
Peppermint plant, Japanese, 37
plants, protection during winter of, 16
Pepsin, chemistry of, 22
preparation of, 237
Peptones, 58 [48
falsification with gelatin,
Peptonization of albuminoids in koumiss, 20
Percolating apparatus, Burton's (*illustrated*), 234
Percolator, Hinsdale's (*illustrated*), 9
Perfumes and essential oils, new mode of extracting (*illustrated*), 262
Perfumery, notes on, 144
"Persian Insect Powder," cultivation of, 14
Perspiration, excessive, to relieve, 20
Peru balsam, 172
Pessaries, glycerin as a basis for, 177
Pestle-handles, to fasten, 284, 369
PETERS, J. A., death of, 128
Petrolates, commerce in, 344 [331
Petrolatum in officinal ointments, 297,
mistaken for dynamite, 312
Petroleum hair-oil, 373
in turpentine, detection of, 147
volatile products of, 156
PHARMACEUTICAL ASSOCIATIONS, American, 287, 223, 256, 310; Arkansas, 96; Connecticut, 95; Indiana, 160; Iowa, 126; Kansas, 160, 255; Louisiana, 95, 189; Maryland, 190; Massachusetts, 188; New Jersey, 189; New York, 31, 126, 219; North Carolina, 256; Ohio, 95, 160, 190, 223; Pennsylvania, 190; Virginia, 222; West Virginia, 160; Wisconsin, 223 256
Pharmaceutical night-service, 160
Pharmacists, Jewish, in Russia, 158, 192
Pharmacopœia, a new Italian, 192
criticisms of the, 157
homœopathic, 190
British, 162
Pharmacy, Connecticut Commissioners of, 31
Delaware Board of, 287

Pharmacy in France, 158, 192
New Jersey Board of, 287
Phenacetolin, 50
Pheno-resorcin, 245
Phloroglucin, 169
Phosphorescence of mixtures, to prevent, 373
Phosphorus in headache, 88
effects on spinal cord, 89
pills of, 232
to keep, 250
Phthisis, volatilized oil for, 19
Physicians' prescriptions in Paris, 162
to population, proportion of, 288
Physostigmin, pure crystallized, 169
Picro-carmine for double staining microscopic preparations, 214
Pictures for drug-stores (*illustrated*),
PIESSE, GEO. W., death of, 32 [217
Piffard's urinary test-pellets, 18
Pill-coating with home-made apparatus (*illustrated*), 198
coating machine, Well's (*illustrated*), 116
counter (*illustrated*), 140
making, notes on, 103
Pilocarpine for perspiration, 243
Pills of potassium permanganate, 117
PINHEIRO, M., death of, 128
Piperine, 174
Pitch lake of Trinidad, 368
Plantain as a styptic, 50, 341
Plants, how to dry, 74
poisoning of, 305
vesicating, 250
Plasma, 176
Plaster, cantharidal, 248
casts, to make, 372
Plasters, 174
Plastic dressing, 247
Platinic iodide in water analysis, 309
Platinum dish, how to repair, 22
plating, liquid, 277
PLUGGE, P. C., poisonous constituents of Andromeda Japonica, 66
Podophyllum, active principles of, 111, 132
resin of, 116
Podophyllotoxin, 132, 174, 344
Poison for rats, 212
sales and Poison law, 196
sales in New Jersey, 96
Poisonous wood, 360
Polyporus officinalis as a remedy in phthisis, 42, 120
Pomade, Circassian, 222
cucumber, 222
Pomegranate bark, 174
Pongamia glabra, oil of, as a remedy in skin disease, 68, 133
Poplar ointment, 92
Poppy cultivation in Persia, 76
Potassa, standard, 90
Potassium bichromate, removal of stains of, 77
carbonate, "purest," 191
chlorate, death from, 361
chlorate, use of, 87
iodide and bromide, administration of, 195
iodide, decomposition of by spirit of nitrous ether, 164
iodide, impurity of, 275
iodide in headache, 88
iodide, purity of, 326
Potassium iodide with calomel, 155
permanganate, behavior of disulphide of carbon towards, 21
permanganate, pills of, 117, 123, 216
salts, action of, 43
solution of, 154
Potus Rivieri, 372
Poudre de riz, 223
Powders for percolation, 157
Precipitates, filtration of, 360
in fluid extracts, tinctures, etc., 294, 323
Prescriber *vs.* dispenser, 314, 322, 369
Prescribing for the poor and for hospitals, rules for, 86 [350
Prescription difficulties, 133, 157, 186, of "specialties," action respecting the, 96
Prescriptions, druggists' responsibilities with, 95
proprietorship in, 80
refilling, 95.
Presses, practical remarks on pharmaceutical, 302
Prices of goods, calculating, 137
Pinus Canadensis, to liquefy, 318
Protagon, 213
Prunes, extract of, 349
Ptomaine, 266
Puff-ball, as a hemostatic, 133
Pulsatilla, mode of using, 87
Purissimus, meaning of, 193
Putrefaction, volatile products, 49
Putz pomade, 549, 283; universal, 213
Pyrethrum roseum, cultivation of, 14
Pyridine in ammonia water, 365
Pyroleine, 3; (*correction*), 153
Pyrrol in ammonia water, 365

Quebracho, demand for, 344
Quercitrin, 29
Quinidine sulphate contaminated with homoquinidine, 84
Quinine, adulterated, 108, 288
and potassium acetate, 349
and urea, muriate of, 349
artificial, 288
bromhydrate, as a cure for malarial fever, 119
commerce in, 344
ether test for, 270
falsification of, 108, 288
ferrocyanide test for, 366
hypophosphite of, 212
injudicious uses of, 89
in the organism, modification of, 361
large auction sale of, 191
manufacture in Hessen, 256
neutral tannate of, 47
pills, analysis, 95, 257, 334
pills, the separation of quinine from coated, 67
sulphate, 174
sulphate in colic, 51
tannate, analysis of, 274
Quinoline and iodoform, conjoint use of, 154
therapeutic uses of, 51

Rain water, apparatus for securing (*illustrated*), 45
RAND, PROF. BENJ HOWARD, death of, 95; (*with portrait*), 224
Rat-poison, 212
Rats and mice, to drive away, 365
RAUSCHENBERG, A. S., action of drugs on the sensitive plant, 101
Refrigerating machine (*illustrated*), 5
Reinsch's test, note on, 275 [56
"Reliquet's Injection" for cystitis,
Rennet, vegetable substitute for, 116
Resin, agaric, 360
"Resin d'Angico," 6
Resorcin as a remedy for cystitis, 51
"Rex Magnus," 349
Rhamnus Purshiana, elixir of, 154
Rheumatism, ichthyol as a remedy for, 111, 116
Rhigolin, 156
Rhubarb, 174
Chinese, 70
commercial sorts and names of Chinese, 70
Himalaya, 92
scarcity of, 344
tests of powdered, 116
Rice-hulls as packing material, 333
Rimijia pedunculata, 36
Rondeletia essence, 146
Rose geranium, production of, 145
Rosemary, production of, 145
Rose oil, production and characteristics of, 145
ROTH, DR. CARL & CO.'s chemicals, 191
"Rouge Végétal," 148
Rules for mixing acids, alcohols, and solutions, 1
Russian Tariff on prepared medicines, 127

Sachet powders, 54 [213
Safety matches for outdoor use, matches, Swedish, 349
Saffranin, 288
"Saffron substitute," 148
Salicin, lessened demand for, 344
synthesis of, 83
Salicylate of sodium, preserving solutions of, 135
Salt in collyria, 278
Samarinum, 304
Sand-bath, substitute for, 53
Santonin, 175
administration of, 240
lower price for, 344
Scabies, chlorinated oil for, 39
Scales and weights, prescription, 78
Scale-pans, to clean brass, 25
Scientific chemist wanted, 31
periodicals, catalogue of, 31
Sealing-wax, 183
Sea mosses, to bleach and color, 317
Senega, fluid extract of, 195, 196
root, false, 75
syrup, 373
Senna, compound powder of, 374
Sensitive-plant, action of certain drugs on, 101
SHOFER, C. M., "Green's August Flowers," "Hostetter's Bitters, 313
Show bottles, to avoid freezing, 374
Silver, chloride, hastening precipitation of, 278
estimation of, 251
oleate, 19
plating, 316
preventing tarnishing, 278
stains, removal of, 288
Siphon starter, Fitch's, 322
Smelling-salts, 153

Smoking, law in New Jersey, 217
Snow-water, purity of, 304
Soap, economical, 25
glycerin, 177
shaving, 244
Soda-fixtures, cleaning, 185
in milk, to detect, 205
standard, 90
works, new, 95
Sodium and potassium chlorate, manufacture of, 91
bicarbonate in headache, 88
boro-salicylate, solution, 59
bromide, mode of using, 87
hyposulphite in wine, 349
salicylate, administering, 195, 87
salicylate in orchitis, 143
salicylate, preserving solutions of, 112, 135
salts, action of, 43
santonate and santoninate, 29
solution of, 154
sulphide, manufacturing, 46
Solubility of chemicals, 8
Solutions, concentrated, 249
Solvents, apparatus for extracting by means of volatile (*illustr.*), 38
Soot-stains on marble, 157
Sozodont, 373
State Board of Pharm., Kentucky, 96
Specific volumes, 338
Spirea ulmaria, occurrence of salicylic acid in, 37
Sponges, bleaching, 213
Spots and stains, removal of, 23
Squill, syrup, objection to acidulated, 136
Staining cherry in imitation of old mahogany, 215
maple gray, 214
Starch test-solution, permanent, 56
Stathmetic methods of assay, 336
Stathmometric methods of assay, 335
Steam apparatus, pharmaceutical (*illustrated*,) 167
kettles, Egrot's (*illustr.*), 106
vaporizer, 249
Stencil paste, black, 349
STERNBERG, G. M., on an automatic heat regulator (*illustrated*), 69
"St. Germain Tea," 142
STILES, A., on tincture of the citro-chloride of iron, 104
Stimulating potions, 55
Stomach bitters, formulas for, 370
digestion, rate of, 312
Stop-cocks, novel (*illustrated*), 242
Storax, 175
as a preservative of ointments, 95
Strawberry pomade, 207
Strychnine in the organism, 361
from "Legen," 243
Stuffed animals, preservation of, 366
"Succus Alterans," 318
Sugar, determination of, 251
grape, preparation of pure, 82
milk, 175, 344
Sulamita vitulus, 241, 258
Sulphides and ammonia, tests, 205
Sulpho-carbolates, notes on, 39
Sulphur in malaria, 52
adulterated, conviction for sale of, 128
Suppositories, size of, 155
Sweating, to prevent excessive, 284
Sweet-gum, 76
substance, a new, 128
Syrup-filter (*illustr.*), 50, 148, 200
of hydriodic acid, 10

Tablets, fumigating, 366
"Tamar Indien," 247
"Tambor" tree, the, 3
Tar, compound elixir of, 29
Tariff, in Venezuela, 191
the new, 149
Tartar emetic, mode of using, 87
Tax on drugs Japanese, 41
Tea, Arabian, 242
seizure of adulterated, 162
"Teinte bordelaise," 148
Test-solution, starch, 56
Tetanus gelsemium in, 89
Thapsia gum, 28 [297
plaster for strained sinew,
Thiophen, 268
"Thompson's Chloroform Liniment," 103
"Eye water," 283
Thyme, oil, production of, 144
Thymol, new reaction of, 53
preparations of, 183
TIDBALL, W. C., dialysis (*illustr.*), 67
Tinctures, concentrated, 155
fluid extracts in, 294
of fresh herbs, 201
precipitates in, 323
preservation of, 134
Tolu, syrup of, 234
Tonka bean, use in perfumery, 146
Tooth-brushes, care of, 275
paste, cherry, 216
powder, 55
washes, 59
Tow, chloride of zinc, 99
chlorinated, 99
sulphurized, 99
Trade marks, money value of, 185
Tragacanth, glycerin of, 176
Trichlorophenol, 169
as an antiseptic, 294
Triturating-machine (*illustrated*), 11
Troches, machine for making, 123
revolving knife for, 175
"Tropic Fruit Laxative," 55, 92
Tuberose, cultivation of, 145
Turpentine, detection of petroleum oil and spirit in, 147
Tutty, 92

Urea, artificial, as a substitute for quinine, 360
Ureameter, Fitch's (*illustrated*), 331
Dannecy's (*illustr.*), 77
Urinary test-pellets, Piffard's, 18
Urine, test for albumen in, 17
testing for naphthol, 292

Vacuum apparatus, 27
pan, Wohl's (*illustr.*), 43
Valerianate of ammonium, removal of odor of, 283
Vanilla, extract, 245
Guadaloupe, 200
in Mexico, 276
use in perfumery, 146
Vanillin, 27
scheme to raise price of, 344
Varnish for labels, 139, 301
transparent, 139
Vaseline and lard, 341
Veratrine, 143
Veratrine, and potassium salts, antagonism between, 103
Verbascum thapsus in consumption, 19
Verbena, production of, 145 [
Vienna bread, 280
Vinegar color, 157
plant, 284
preparation of, 371
Violet, cultivation of, 145
Volumetric apparatus (*illustrated*), 133, 355
solutions, to prevent foaming of, 59
Vomiting in pregnancy, parched corn as a remedy for, 104

WADE, W. C., on salicylate of bismuth, 313
Wahoo, elixir of, 156
Waras, 111, 116
Warts, remedy for, 45
Wash-bottle, hot water (*illustr.*), 71
Water-baths (*illustrated*, 270
bath with constant level, Klement's (*illustrated*), 300
chloroform, 56
platinic iodide as a test for organic impurities in, 309
proof coating for wood, stones, etc., 56
Waterproofing manilla paper, 215
Waters, aromatic, preservation and restoration of, 268
medicated, 158
Wax, Japanese, 174
modelling, 288
Wei De Meyer's Catarrh Cure, 369
Weighing and determining specific gravity *illustrated*), 366
small quantities, 355
Weights and measures in England, defective, 57
Welcome to the pharmacists, 223
Whey, condensed, 42
Whiskey, manufacture of, 345, 354
White agaric in phthisis, 120
White-rose essence, 146 [313
Wild-cherry, compound syrup of, 246,
WILEY, Prof. H W., 160
Wine in German hospitals, 64
preserving liquid, Wickersheimer's, 247
tannin, 249
Wood boxes, grease-proof, 317
wool, 361
"Worstershire Sauce," 315
WŒHLER, monument to, 128
WRAMPELMEIER, TH. J., on the dilution and mixture of acids, alcohol, solutions of salts etc., 1
Wrapper, anti-nostrum, 127
Writing fluid, Arnold's, 372

Xanthorrhœa resin, 29

Yeast, simple process for, 215 [123
Yellow color for confectionery,
"Yerba Santa" as a disguise for quinine, 20

Zapoto-gum, 130
Zinc bromide, 218
chloride, tow, 99 [307
determination as sulphide,
iodide, 156
oleate, 19
oxide in headache, 88
salicylate of. 143
sulphate, pencils of, 130